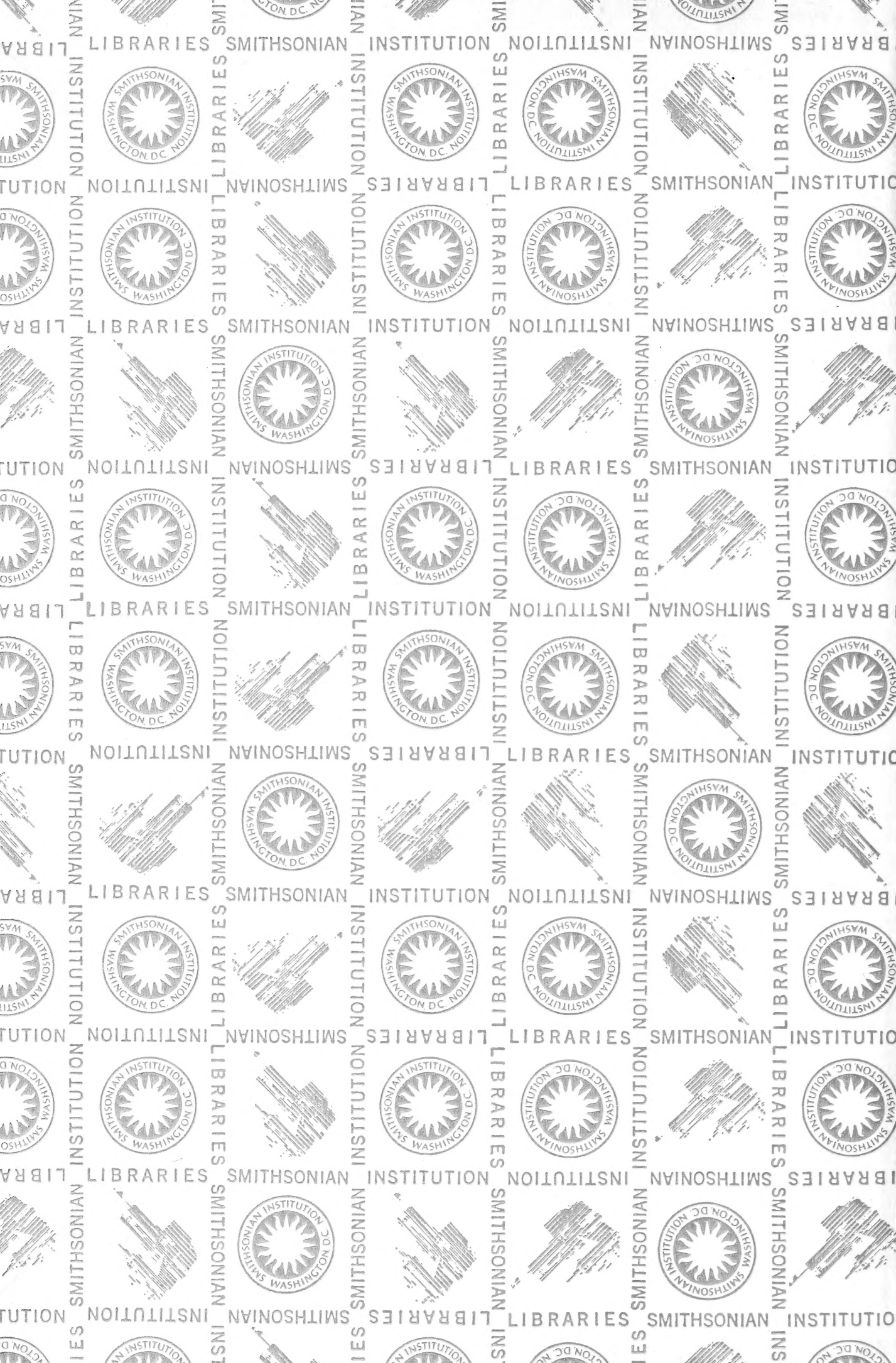
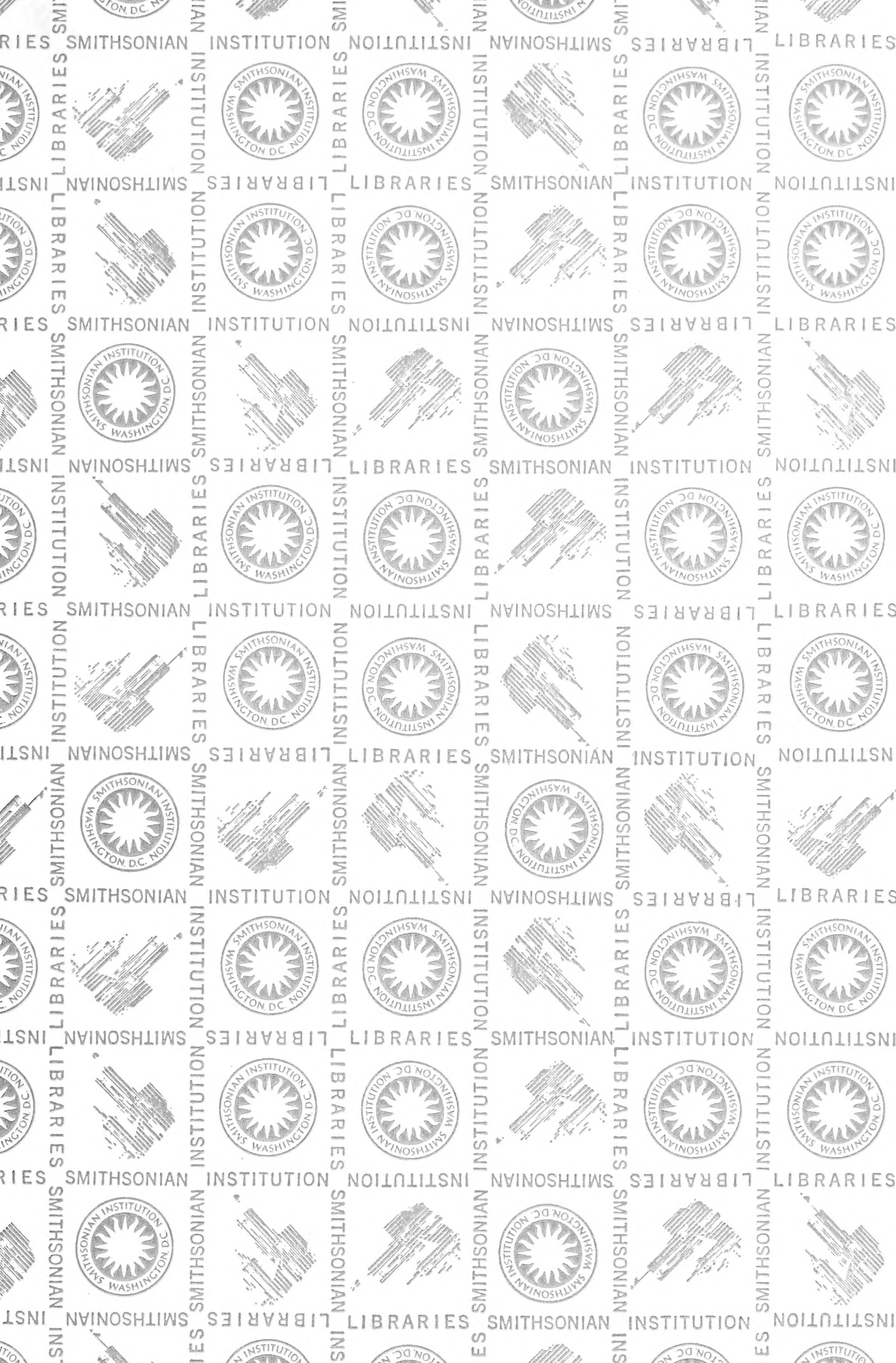
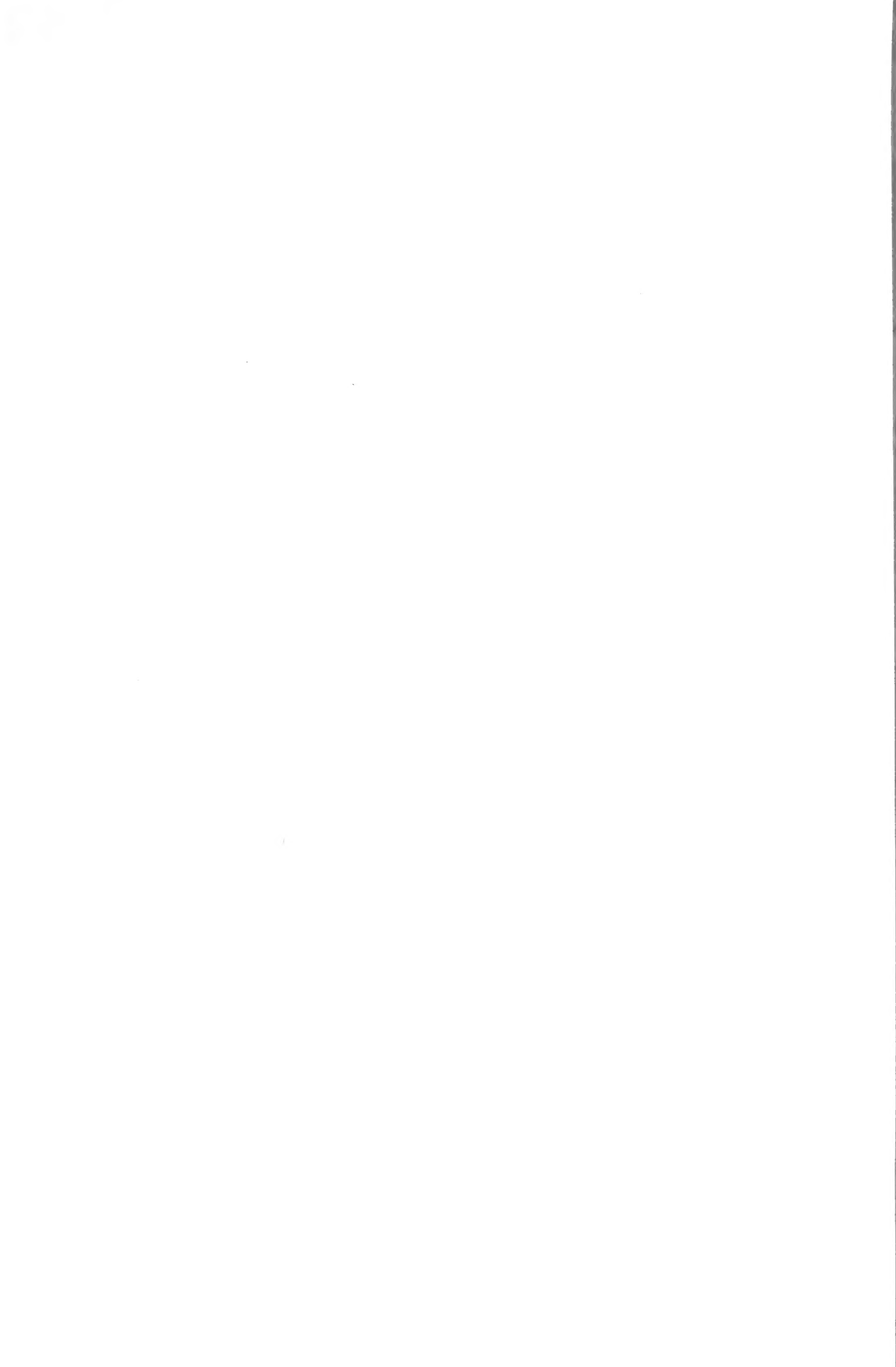


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MUSEUM BULLETIN 25



REPORT OF THE STATE BOTANIST

1898

ALBANY

UNIVERSITY OF THE STATE OF NEW YORK

1899

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PUBLICATIONS

Museum reports. New York state museum. Annual report, 1847-date. O. Albany 1848-date.

Average 300 pages a year. Price for all in print to 1892, 50 cents a volume; 75 cents in cloth; 1892-date, 75 cents, cloth.

Museum bulletins. New York state museum. Bulletins. v. 1-6, O. Albany 1887-date. *Price to advance subscribers, 75 cents a year.*

Volume 1. 6 nos. Price \$1 in cloth

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- 2 Peck, C: H. Contributions to the botany of the state of New York. 66p. 2 pl. May 1887. *Price [35] cents.*
- 3 Smock, J: C. Building stone in the state of New York. 152p. Mar. 1888. *Out of print.*
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Clarke, J: M. Paleontologic papers; Simpson, G: B. Preliminary descriptions of new genera. *In preparation*.
Ries, H. Clays: their properties and uses. *In preparation*.
Miller, G. S., jr. Key to the land mammals of n. e. North America. *In preparation*.

Economic map. Merrill, F: J. H. Economic and geologic map of the state of New York. 59×67 cm. 1894. *Price, unmounted 25 cents, backed on muslin 75 cents*.

Scale 14 miles to 1 inch. New edition in preparation.

Museum memoirs. New York state museum. Memoirs. v. 1, Q. Albany 1889.

Uniform with the *Paleontology*.

- 1 Beecher, C: E., & Clarke, J: M. Development of some Silurian brachiopoda. 95p. 8 pl. Oct. 1889. *Price 80 cents*.
- 2 Hall, James & Clarke, J: M. Paleozoic reticulate sponges. 350p. il. 70 pl. Oct. 1899. *Price \$1*.
- 3 Clarke, J: M. The Oriskany fauna of Becraft mountain, Columbia co. N. Y. *In preparation*.

Natural history. New York state. Natural history of New York. 30 v. il. pl. maps, Q. Albany 1842-94.

Divisions 1-5 out of print.

Division 1 De Kay, J. E. Zoology. 5 v. pl. 1842-44.

" 2 Torrey, John. Botany. 2 v. 1843.

" 3 Beck, L. C. Mineralogy. 24+536p. il. pl. 1842.

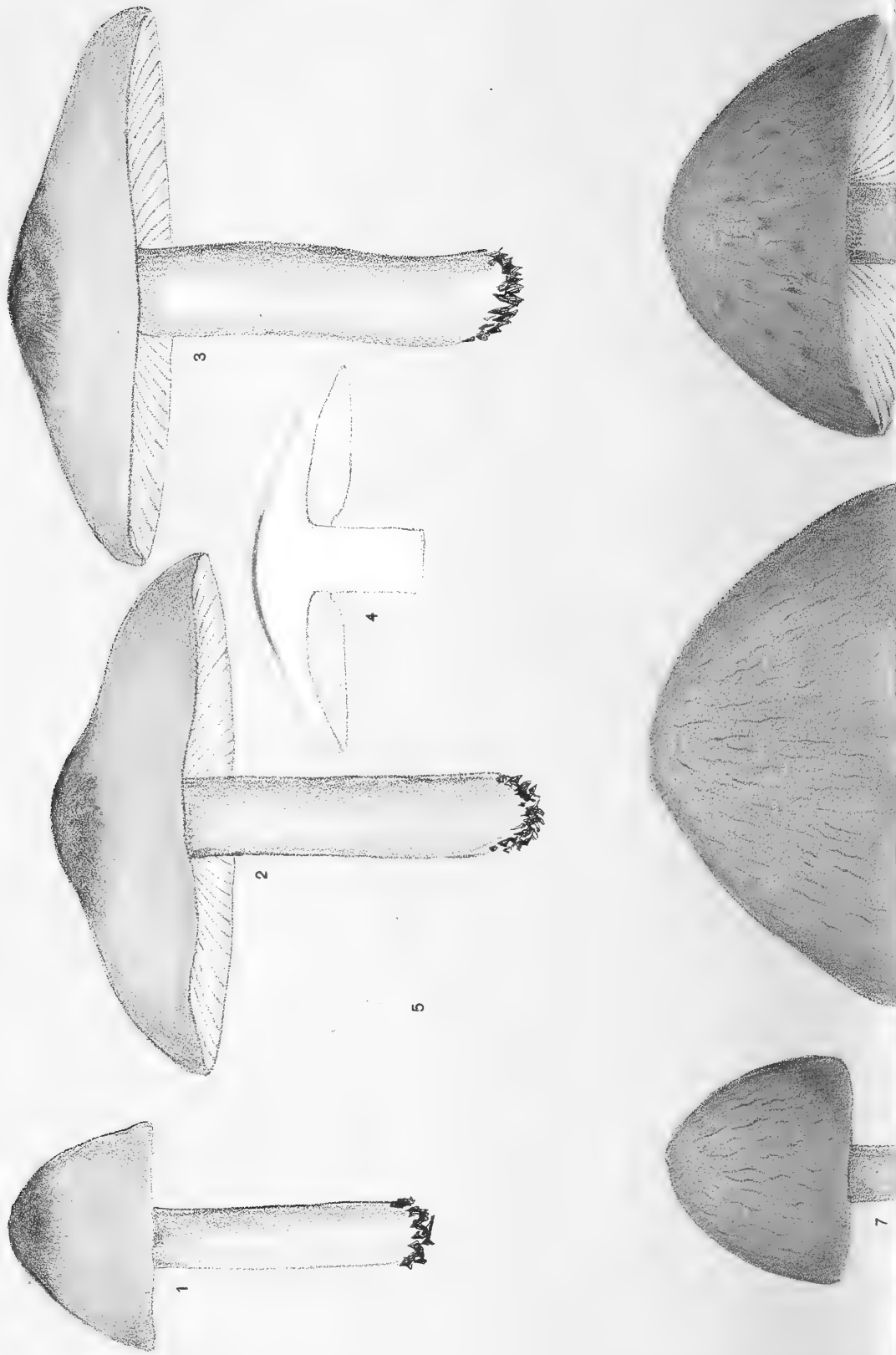
" 4 Mather, W: W.; Emmons, Ebenezer; Vanuxem, Lardner; & Hall, James. Geology. 4 v. pl. maps. 1842-43.

" 5 Emmons, Ebenezer. Agriculture. 5 v. il. maps. 1846-54.

" 6 Hall, James. Paleontology. 8 v. il. pl. 1847-94.

EDIBLE FUNGI

N. Y. STATE MUS. 52





C. H. PECK, DEL.

FIG. 1 TO 5 **TRICHOLOMA PORTENTOSUM CENTRALE** PK.
CENTRAL TRICHOLOMA

FIG. 6 TO 13 **CORTINARIUS CORRUGATUS** PK.
CORRUGATED CORTINARIUS



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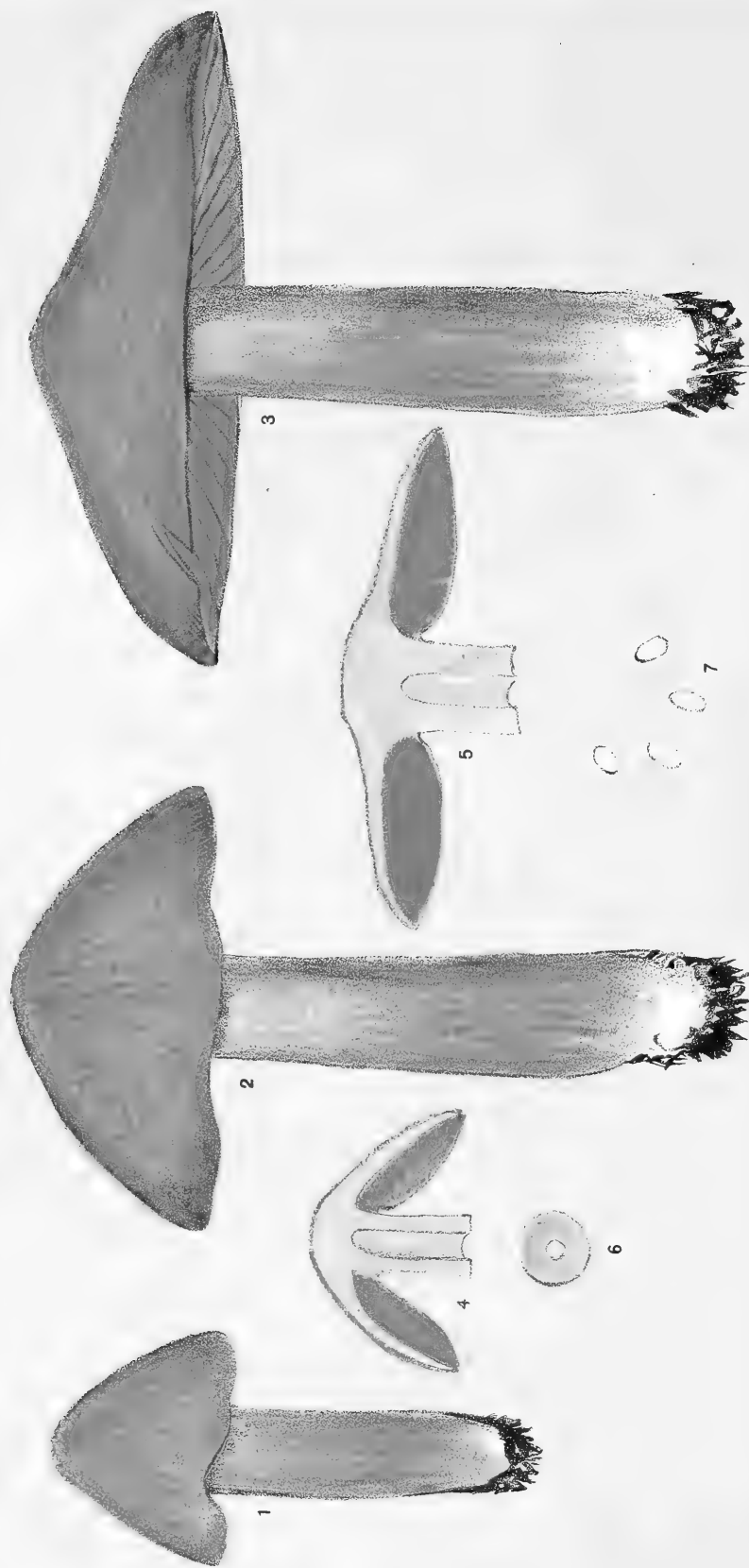
FIG. 1 TO 5 *TRICHOLOMA PORTENTOSUM CENTRALE* PK.
CENTRAL TRICHOLOMA

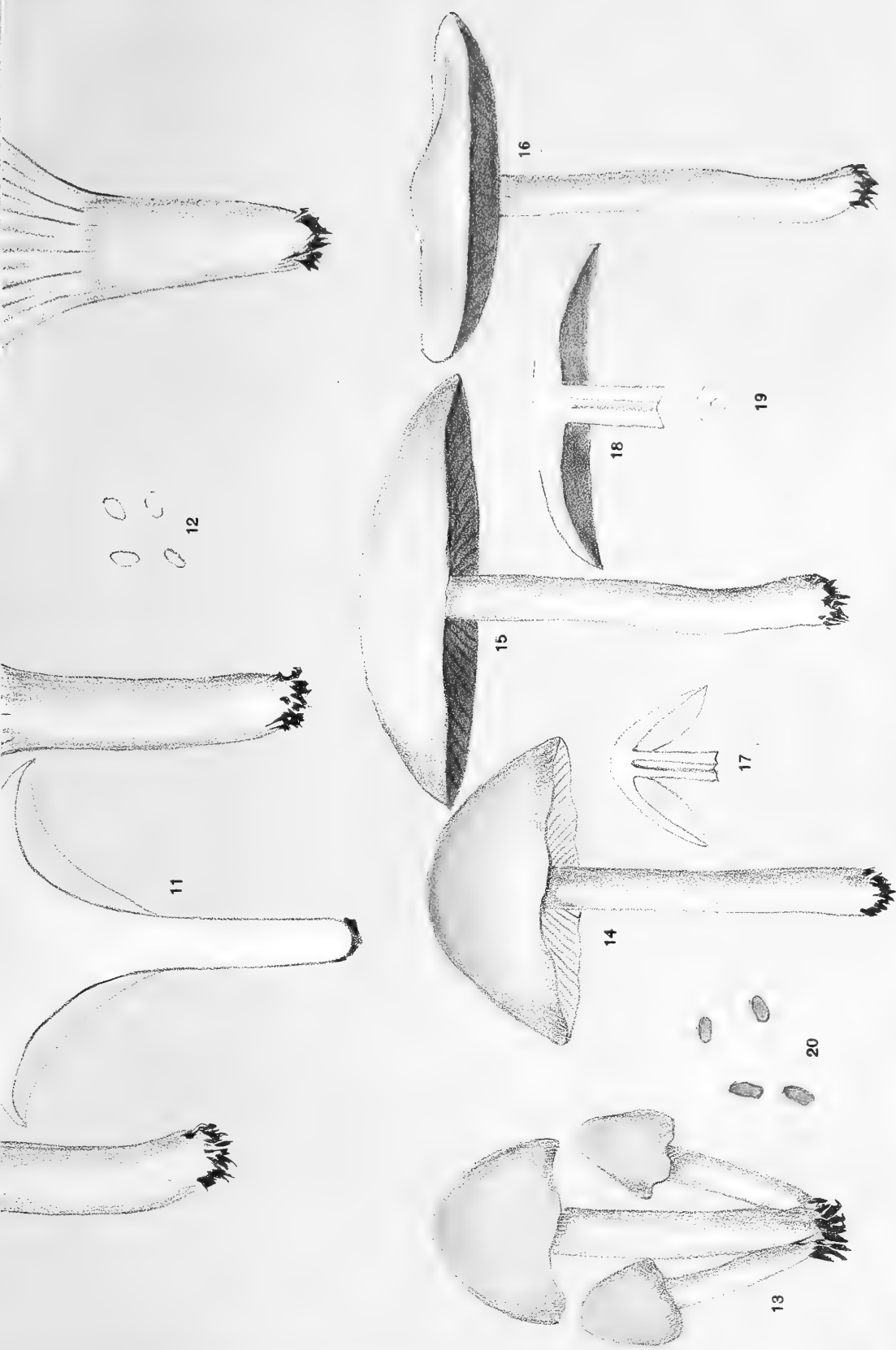
FIG. 6 TO 13 *CORTINARIUS CORRUGATUS* PK.
CORRUGATED CORTINARIUS

EDIBLE FUNGI

N. Y. STATE MUS. 52

PLATE 58





C. H. PECK, DEL.

FIG. 1 TO 7 **HYGROPHORUS PUNICEUS** FR.
RED HYGROPHORUS

FIG. 8 TO 12 **HYGROPHORUS VIRGINEUS** FR.
WHITE HYGROPHORUS

FIGS. 13 TO 20 **HYPHOLOMA INCERTUM** PK.
UNCERTAIN HYPHOLOMA

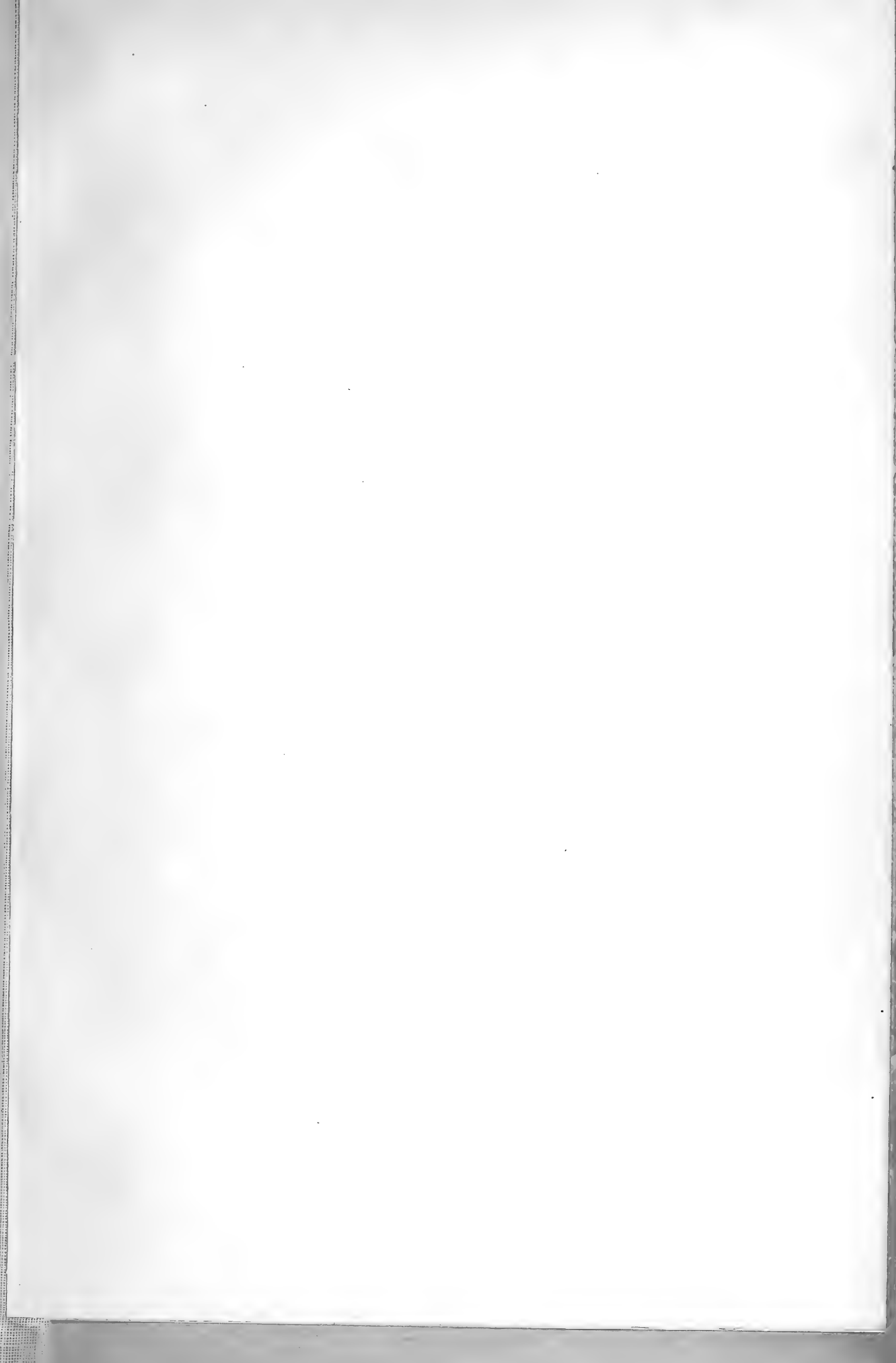


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FIG. 1 TO 7 *HYGROPHORUS PUNICEUS* FR.
RED HYGROPHORUS

FIG. 8 TO 12 *HYGROPHORUS VIRGINEUS* FR.
WHITE HYGROPHORUS

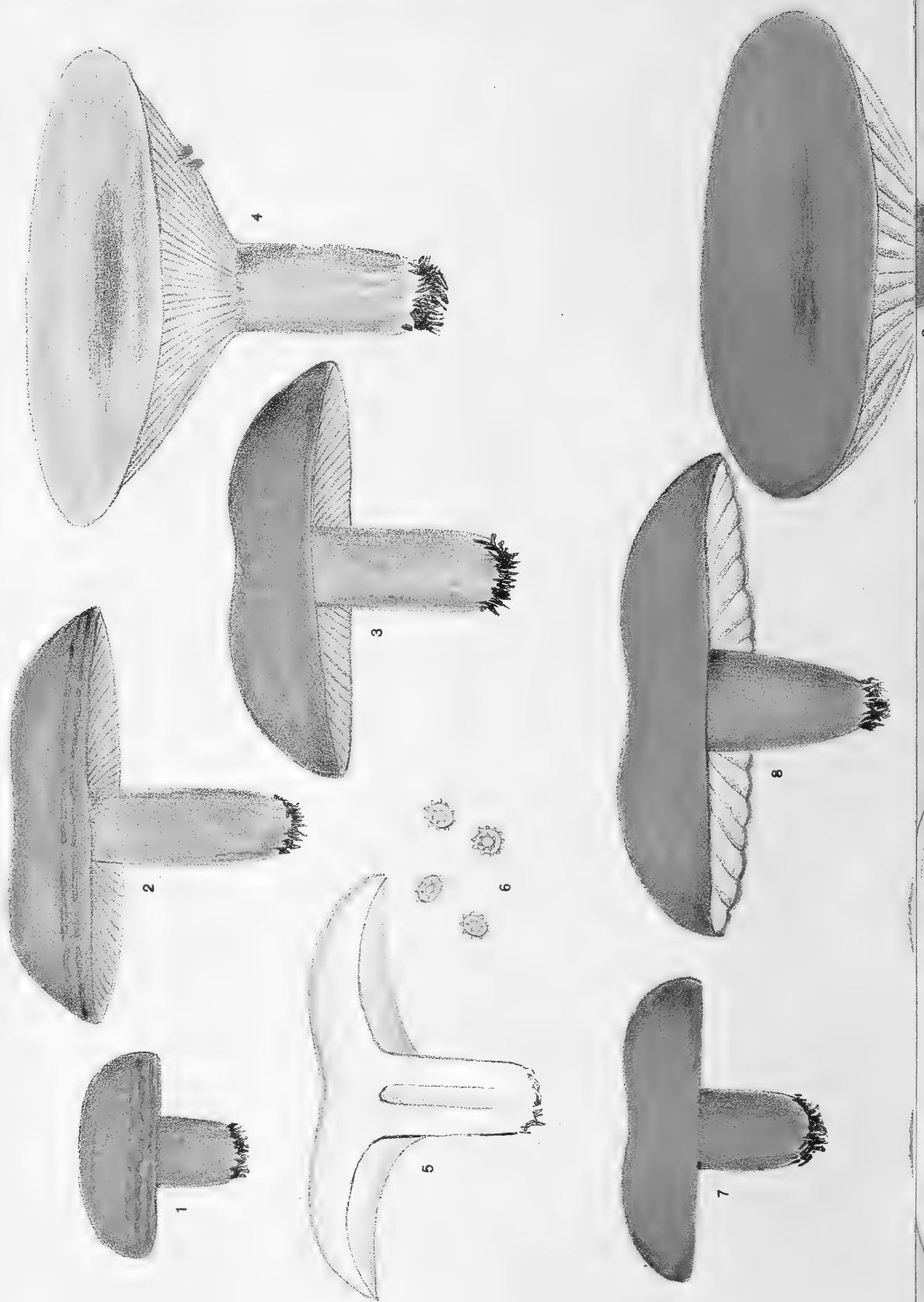
FIGS. 13 TO 20 *HYPHOLOMA INCERTUM* PK.
UNCERTAIN HYPHOLOMA

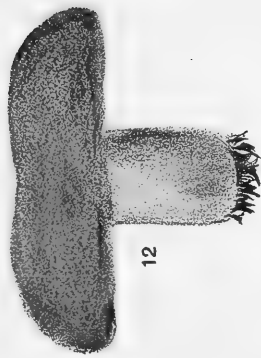
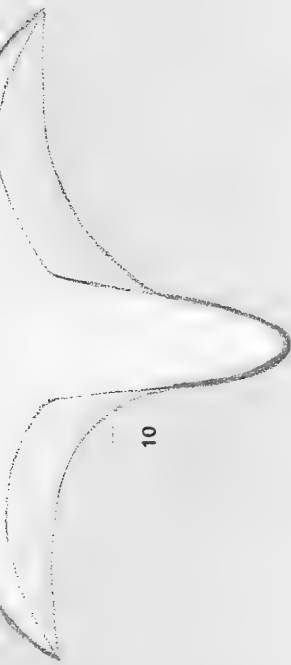


EDIBLE FUNGI

N. Y. STATE MUS, 52

PLATE 59





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FIG. 1 TO 6 **LACTARIUS CHELIDONIUM** PK.
GELANDINE LACTARIUS

FIG. 7 TO 11 **LACTARIUS DISTANS** PK.
DISTANT-GILLED LACTARIUS

FIGS. 12 TO 16 **LACTARIUS GERARDII** PK.
GERARD'S LACTARIUS



C. H. PECK, DEL.

FIG. 1 TO 6 **LACTARIUS CHELIDONIUM** PK.
GELANDINE LACTARIUS

FIG. 7 TO 11 **LACTARIUS DISTANS** PK.
DISTANT-GILLED LACTARIUS.

FIGS. 12 TO 16 **LACTARIUS GERARDII** PK.
GERARD'S LACTARIUS

EDIBLE FUNGI

N. Y. STATE MUS. 52.

PLATE 60

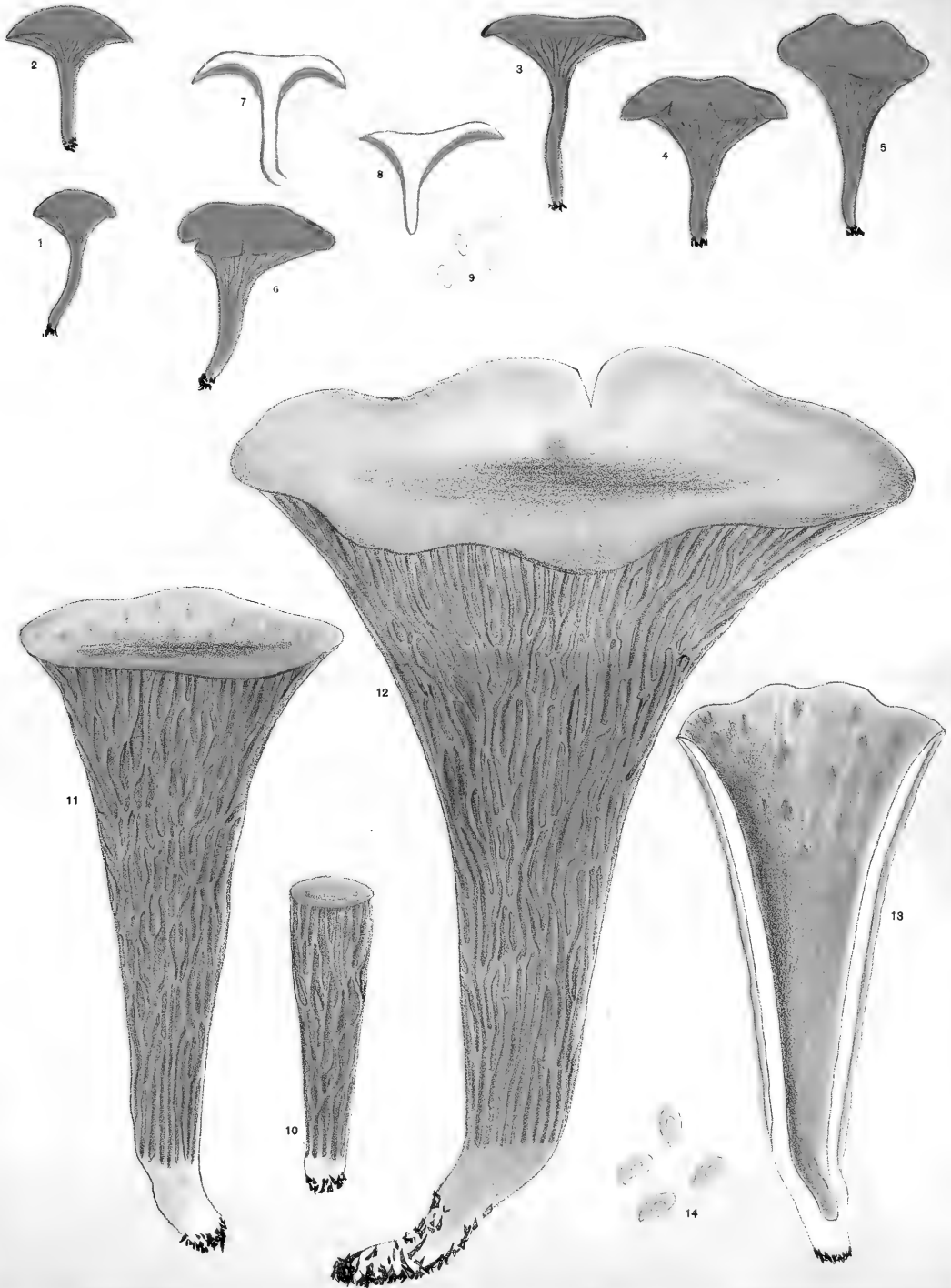




C. H. PECK, DEL.

FIG. 1 TO 9. **CANTHARELLUS CINNABARINUS** SCHW.
CINNABAR CHANTERELLE

FIG. 10 TO 14 **CANTHARELLUS FLOCCOSUS** SCHW.
FLOCCOSE CHANTERELLE



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FIG. 1 TO 9. *CANTHARELLUS CINNABARINUS* SCHW.
CINNABAR CHANTERELLE.

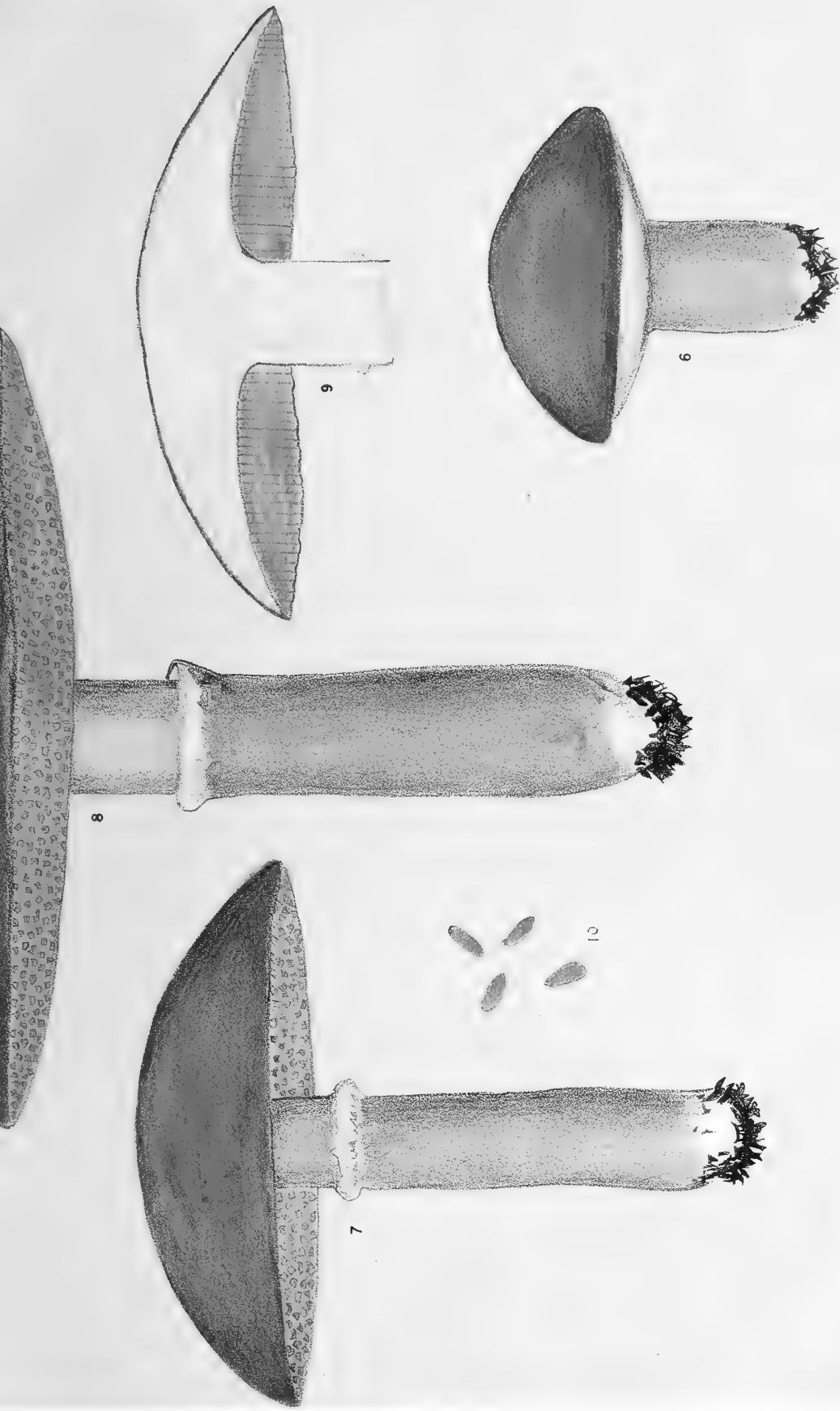
FIG. 10 TO 14 *CANTHARELLUS FLOCCOSUS* SCHW.
FLOCCOSE CHANTERELLE.

EDIBLE FUNGI

PLATE 61.

N. Y. STATE MUS. 52





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FIG. 1 TO 5 **BOLETINUS PICTUS** PK.
PAINTED BOLETINUS.

FIG. 6 TO 10 **BOLETUS CLINTONIANUS** PK.
CLINTON'S BOLETUS.



C. H. PECK, DEL.

FIG. 1 TO 5 **BOLETINUS PICTUS** PK.
PAINTED BOLETINUS.

FIG. 6 TO 10 **BOLETUS CLINTONIANUS** PK.
CLINTON'S BOLETUS.

University of the State of New York

BULLETIN

OF THE

New York State Museum

FREDERICK J. H. MERRILL, *Director*

VOL. 5 No. 25

October 1899

REPORT OF THE STATE BOTANIST

1898

BY

CHARLES H. PECK, M.A.
State botanist

ALBANY

UNIVERSITY OF THE STATE OF NEW YORK

1899

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ALBANY

UNIVERSITY OF THE STATE OF NEW YORK

1899

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REPORT
OF THE
STATE BOTANIST
1898

To the Honorable the Regents of the University of the State of New York :

GENTLEMEN: I have the honor of submitting to you my report of work done in the botanical department of the state museum during the year 1898.

Specimens of plants for the herbarium have been collected in the counties of Albany, Essex, Greene, Herkimer, Oswego, Rensselaer, Saratoga, Schenectady, Schoharie and Washington. Specimens have been received from correspondents, either as contributions or for identification, collected in the counties of Cayuga, Columbia, Essex, Kings, Monroe, Onondaga, Queens, Richmond, Saratoga, St Lawrence, Tioga and Washington. The number of species of which specimens have been added to the herbarium is 282. Of these 46 were not before represented in it and 236 are now more completely and satisfactorily represented than before. Specimens contributed by correspondents represent 21 species, specimens collected by the botanist, 261. The number of new species described is 6.

A list of the names of the species of which specimens have been added to the herbarium is marked A. A list of the names of contributors and of the species represented by their respective contributions is marked B. This list contains the names of 30 contributors of whom 15 have sent specimens collected beyond our state limits.

In the sixth and latest edition of Gray's *Manual of botany* many plant names adopted in former editions are changed. These changes are partly due to a different understanding of species and partly to the requirements of the law of priority of publication. The change of well-established botanical names made familiar by long use is greatly to be

deplored and is the source of much perplexity and annoyance. Such changes should never be made except in accordance with well-recognized principles of justice and for the sake of ultimate uniformity and permanency. Evidently desirous of putting our botanical nomenclature on a firm foundation the authors of the recently issued *Illustrated flora* have made a rigid application of the law of priority, both to generic and specific names. More than 600 names of our New York species of flowering plants and ferns included in this work have been changed. This is nearly one third the whole number and necessitates the rejection of nearly one in three, if the nomenclature of the *Illustrated flora* is adopted in place of that of the *Manual*.

This may cause some temporary inconvenience to the older botanists who have been familiar with other names, but if it shall be the means of securing greater uniformity and stability of nomenclature it will be worth all the temporary inconvenience. Some of the changes have been caused by a better understanding of certain species, and some by raising forms previously regarded as varieties to the rank of species. This element of instability is not likely to be eliminated so long as mistakes in identification are made and so long as there are differences of opinion as to what should constitute a species and what a variety. But the changed names due to these causes are few in comparison with those due to the requirements of the law of priority. To show in compact form the changes made in the names of our New York species, a list of these names has been prepared in which the names adopted in the *Manual* stand in a column on the left of the page, and the corresponding names in the *Illustrated flora*, in a column on the right. This list is marked C.

The 46 species not before reported are noticed under the letter D. Some are plants of comparatively recent introduction, some have been previously regarded as mere varieties of other species, but are now recognized as distinct species. A few are considered new species and are named and described as such. A record of observations on species previously reported, remarks concerning them and descriptions of new varieties is marked E.

Mt Marcy is the highest peak of the Adirondacks and of the state. Its summit is too elevated to permit trees to grow there in any other than a dwarf or shrub-like form and but few of the most hardy species appear there even in this form. This leaves the summit open to the full sunlight and inhabitable by hardy shrubs, undershrubs and herbaceous plants. The locality is also prolific in such mosses, liverworts

and lichens as find their favorite abode in cold mountainous regions and alpine situations. The number of species of plants found in this cold, bleak place exceeds 200 of which 75 are seedbearing, though they do not all perfect seed there. The summit may be regarded as a natural botanic garden full of interesting and instructive hardy plants. Several species occur there that have been found nowhere else in the state. Having made several botanical excursions to the top of the mountain, and having been there on different occasions in June, July and August, the months which constitute nearly all the growing season of the place, it has seemed to me desirable to make a record of the plants found there. A list of the species with remarks concerning some of the most interesting and important ones and describing the character and conditions of the place is marked F.

My investigations of the edible mushrooms of the state have been continued. Satisfactory trial has been made of 12 additional species. Colored life-size figures of these have been prepared and placed on five plates of the same size as those previously published. Descriptions of them have been written, uniform in plan with those of the species already published. This descriptive part of the report is designated by the letter G.

During September, October and November more packages of mushrooms of various kinds were received for identification, and for information concerning their edible qualities, than in any previous corresponding period. These came from distant and widely separated places, and they indicate an extensive and rapidly increasing interest in the subject. Through these and the communications accompanying them it is evident that in some places the general crop of species growing in woods and fields was unusually abundant. In other places there was a great scarcity of them. This difference is due chiefly to differences in climatic and meteoric conditions. The conditions favorable to a large crop appear to have prevailed in most places along the coast from Maine to Virginia, extending inland to central Pennsylvania and some parts of western New York. One correspondent in Pennsylvania reports that he never before saw such a variety and such an abundance of mushrooms. Sitting on his piazza he was able to count 52 species in sight at one time.

Another correspondent writing from Washington, D. C., gives information of a remarkable crop or succession of crops on an island in the Potomac river. The island is near the city and dredgings from the river had been dumped in low places on it, filling them up and making a soil of great fertility. In due time several species of mushrooms appeared in

such quantity as to attract his attention. Three species were specially prevalent. These were the shaggy *Coprinus*, *C. comatus*, the masked *Tricholoma*, *T. personatum*, and the tufted *Clitocybe*, *C. multiceps*. These are all edible mushrooms. The last grew in great clusters, in one of which 90 individual plants were counted. The masked *Tricholoma* was also very abundant and is a mushroom of excellent flavor. The abundance of the crop gradually increased and the area occupied by it extended till about 15 acres were covered by the various species. It was not pleasant to see so much good food wasting and decomposing on the ground. Mr Braendle therefore directed public attention to the fact by publishing a notice in one of the daily papers of the presence of a bounteous crop of mushrooms which could be had for the slight trouble of gathering them. People soon began to throng the island and to gather its unusual and interesting crop. I quote by permission from Mr Braendle's letter of November 21, "I visited the island yesterday and though over a hundred bushels had been carted away on Saturday there are just as many *C. multiceps* and *T. personatum* as before. They are spreading over the island very rapidly. People are no longer afraid of them, as thousands of persons have tried them since November 11. Italians, Greeks and Germans make the most use of them, and many families are drying them for winter use. There are now about fifteen acres covered by these fungi, including *Coprinus comatus* of which thousands are gathered every day."

These statements show what prolific crops of edible fungi may be expected when the conditions for their growth are favorable, and also how readily people avail themselves of them as an article of food as soon as they are confident that they can do so without danger.

The investigation of the flora of the town of North Elba has been continued, and some parts of the town I had not previously visited have been botanically explored. Among these are the top of Wallface mountain and the cold, elevated, swampy district west and northwest of this mountain. These new localities have added several species to the list of those previously known to belong to the flora of North Elba, and a few to the flora of the state.

Respectfully submitted

CHARLES H. PECK

State botanist

Albany, December 28, 1898

A

PLANTS ADDED TO THE HERBARIUM

New to the herbarium

Sisymbrium altissimum <i>L.</i>	Lecanora Laureri <i>Hepp</i>
Diploxys tenuifolia (<i>L.</i>) <i>DC.</i>	Biatora Schweinitzii <i>Fr.</i>
Cytisus scoparius (<i>L.</i>) <i>Lk.</i>	Cladonia decorticata <i>Floerk.</i>
Onagria cruciata (<i>Nutt.</i>) <i>Small</i>	C. sobolescens <i>Nyl.</i>
Galium Claytoni <i>Mx.</i>	Lepiota solidipes <i>Pk.</i>
Nabalus trifolius <i>Cass.</i>	Tricholoma acre <i>Pk.</i>
Broussonetia papyrifera (<i>L.</i>) <i>Vent.</i>	T. portentosum <i>Fr.</i>
Salsola Tragus <i>L.</i>	Clitocybe eccentrica <i>Pk.</i>
Convallaria majalis <i>L.</i>	Marasmius acerinus <i>Pk.</i>
Juncooides spicatum (<i>L.</i>) <i>Kuntze</i>	Clitopilus socialis <i>Pk.</i>
Panicum Atlanticum <i>Nash</i>	Hebeloma palustre <i>Pk.</i>
Alopecurus agrestis <i>L.</i>	Crepidotus epibryus <i>Fr.</i>
Koeleria cristata (<i>L.</i>) <i>Pers.</i>	Gomphidius furcatus <i>Pk.</i>
Sphagnum Russowii <i>Warnst.</i>	Psilocybe uda <i>Pers.</i>
S. quinquefarium <i>Warnst.</i>	Polyporus hispidellus <i>Pk.</i>
Splachnum rubrum <i>L.</i>	Vermicularia punctans, <i>Schw.</i>
Hypnum laxepatulum <i>L. & J.</i>	Uromyces caryophyllinus (<i>Schrank</i>)
Scapania apiculata <i>Spruce.</i>	Peridermium Engelmanni <i>Thum</i>
Jungermannia Kunzeana <i>Huben.</i>	Gymnosporangium Nidus-avis <i>Thaxter</i>
Umbilicaria erosa (<i>Web.</i>) <i>Hoffm.</i>	Peronospora australis <i>Speg.</i>
Peltigera rufescens (<i>Neck.</i>) <i>Hoffm.</i>	Chlorosplenium aeruginascens (<i>Nyl.</i>)
Physcia agglutinata (<i>Floerk.</i>) <i>Nyl.</i>	Tympanis laricina (<i>Fckl.</i>) <i>Sacc.</i>
P. setosa (<i>Ach.</i>) <i>Nyl.</i>	
Placodium vitellinum (<i>Ehrh.</i>) <i>N. & H.</i>	

Not new to the herbarium

Ranunculus acris <i>L.</i>	Nymphaea rubrodisca (<i>Morong</i>) <i>Greene</i>
R. recurvatus <i>Poir.</i>	N. Kalmiana (<i>Mx</i>) <i>Sims</i>
Batrachium trichophyllum (<i>Chaix.</i>) <i>Bosch</i>	Viola blanda <i>Willd.</i>
Actaea alba (<i>L.</i>) <i>Mill.</i>	V. primulaefolia <i>L.</i>
Cimicifuga racemosa (<i>L.</i>) <i>Nutt.</i>	V. palmata <i>L.</i>
Barbarea Barbarea (<i>L.</i>) <i>MacM.</i>	V. Labradorica <i>Schrank</i>
Cardamine bulbosa (<i>Schreb.</i>) <i>B. & P.</i>	V. rostrata <i>Pursh</i>
C. Pennsylvanica <i>Muhl.</i>	V. pubescens <i>Ait.</i>
Roripa sylvestris (<i>L.</i>) <i>Bess.</i>	V. striata <i>Ait.</i>
R. hispidula (<i>Desv.</i>) <i>Britton</i>	Drosera intermedia <i>Hayne</i>
Brassica nigra (<i>L.</i>) <i>Koch</i>	Hypericum ellipticum <i>Hook.</i>
B. arvensis (<i>L.</i>) <i>B. & P.</i>	H. Canadense <i>L.</i>
Papaver somniferum <i>L.</i>	Triadenum Virginicum (<i>L.</i>) <i>Raf.</i>
Glaucium Glaucium (<i>L.</i>) <i>Karst.</i>	Alsine borealis (<i>Bigel</i>) <i>Britton</i>
Nymphaea advena <i>Soland.</i>	A. longifolia (<i>Muhl.</i>) <i>Britton</i>

- Alsine graminea* (L.) Britton
Saponaria officinalis L.
Abutilon Abutilon (L.) Rusby
Ceanothus Americanus L.
Acer rubrum L.
A. saccharinum L.
Oxalis violacea L.
Trifolium hybridum L.
Falcata comosa (L.) Kuntze
Apios Apios (L.) MacM.
Amygdalus Persica L.
Prunus Americana Marsh.
P. Virginiana L.
Waldsteinia fragarioides (Mx.) Tratt.
Spiraea salicifolia L.
Agrimonia hirsuta (Muhl.) Bicknell
Geum rivale L.
G. macrophyllum Willd.
Rosa cinnamomea L.
Rubus strigosus Mx.
R. Americanus (Pers.) Britton
Crataegus coccinea L.
C. macracantha Lodd.
Amelanchier spicata (Lam.) DC.
A. rotundifolia (Mx.) Roem.
A. oligocarpa (Mx.) Roem.
A. Botryapium (L. f.) DC.
A. Canadensis (L.) Medic.
Sorbus sambucifolia (C. & S.) Roem.
Malus coronaria (L.) Mill.
Tiarella cordifolia L.
Mitella diphylla L.
Ribes rubrum L.
R. lacustre (Pers.) Poir.
R. prostratum L'Her.
R. oxycanthoides L.
Hippuris vulgaris L.
Anychia Canadensis (L.) B. S. P.
Onagra biennis (L.) Scop.
Sanicula gregaria Bicknell
Cicuta maculata L.
Cornus Canadensis L.
Galium trifidum L.
G. asprellum Mx.
Lonicera ciliata Muhl.
L. coerulea L.
Sambucus Canadensis L.
Viburnum alnifolium Marsh.
Valeriana officinalis L.
Valerianella radiata (L.) Dufur.
Eupatorium perfoliatum L.
E. ageratoides L. f.
Solidago alpestris W. & K.
S. Canad. glabrata Porter
S. Virg. Redfieldii Porter
S. macrophylla Pursh
S. serotina Ait.
S. juncea ramosa P. & B.
Doellingeria umbellata (Mill.) Nees
Bidens Beckii Torr.
Aster divaricatus L.
A. divar. cymulosus Burgess
A. macr. velutinus Burgess
A. acuminatus Mx.
A. cordifolius L.
A. amethystinus Nutt.
A. patens Ait.
A. lateriflorus (L.) Britton
A. puniceus L.
A. Novi-Belgii L.
Gnaphalium decurrens Ives
G. obtusifolium L.
Xanthium strumarium L.
Senecio vulgaris L.
Tanacetum vulgare L.
Hieracium Marianum Willd.
Nabalus Boottii DC.
N. nanus (Bigel.) DC.
N. albus (L.) Hook.
N. altissimus (L.) Hook.
N. serpentarius (Pursh) Hook.
Lobelia inflata L.
L. Dortmanna L.
Campanula rotundifolia L.
Vaccinium uliginosum L.
V. Pennsylvanicum Lam.
Chamaedaphne calyculata (L.) Moench
Ledum Groenlandicum Oeder
Rhodora Canadensis L.
Pyrola elliptica Nutt.
Kalmia glauca Ait.
K. angustifolia L.
Plantago Virginica L.
Trientalis Americana Pursh

- Ilex monticola* Gray
Illicioides mucronata (L.) Britton
Gentiana linearis Froel.
Veronica arvensis L.
V. peregrina L.
V. serpyllifolia L.
Chelone glabra L.
Stachys palustris L.
Diapensia Lapponica L.
Sassafras Sassafras (L.) Karst.
Polygonum scandens L.
Rumex crispus L.
R. Britannica L.
R. Patientia L.
Razoumofskyia pusilla (Pk.) Kuntze
Amaranthus paniculatus L.
Chenopodium album L.
C. album viride (L.) Moq.
Euphorbia nutans Lag
Fraxinus Americana L.
Empetrum nigrum L.
Corema Conradii Torr.
Utricularia intermedia Hayne
Alnus Alnobetula Koch
Betula nigra L.
B. papyrifera Marsh.
Salix sericea Marsh.
S. petiolaris Sm.
Populus bals. candicans Gray
Pinus Strobus L.
P. divaricata (Ait.) Sudw.
Picea Canadensis (Mill.) B. S. P.
Larix laricina (Du Roi) Koch
Tsuga Canadensis Carr.
Abies balsamea (L.) Mill.
Juniperus nana Willd.
J. nana alpina (Gaud.)
J. Sabina L.
J. Virginiana L.
Thuja occidentalis L.
Chamaecyparis thyoides (L.) B. S. P.
Taxus minor (Mx.) Britton
Sparganium simplex Huds.
S. simp. angustifolium (Mx.)
S. andr. fluctuans Morong
Potamogeton Oakesianus Robbins
Sagittaria rigida Pursh
Sagittaria latifolia Willd.
Vagnera trifolia (L.) Morong
V. racemosa (L.) Morong
Streptopus roseus Mx.
S. amplexifolius (L.) DC.
Trillium undulatum Willd.
T. grand. variegatum Pk.
Sisyrinchium angustifolium Mx.
Arisaema triph. pusillum Pk.
Habenaria lacera (Mx.) R. Br.
H. bracteata R. Br.
H. orbiculata (Pursh) Torr.
Peramium repens (L.) Salisb.
Medeola Virginiana L.
Juncus militaris Bigel.
J. filiformis L.
J. Can. brevicaudatus Engelm.
Scirpus Torreyi Olney
Eriophorum Virginicum L.
E. Virginicum album Gray
Carex arctata Boott
C. altocaulis (Dew.) Britton
C. Bigelovii Torr.
C. canescens L.
C. deflexa Hornem.
C. formosa Dew.
C. laxiflora Lam.
C. lenticularis Mx.
C. pedicellata (Dew.) Britton
C. scirpoidea Mx.
C. stricta xerocarpa (Wright) Britton
C. utriculata Boott
Agrostis rubra L.
A. hyemalis (Walt.) B. S. P.
Calamagrostis breviseta (Gr.) Scribn.
C. Canadensis (Mx.) Bv.
Cinna arundinacea L.
Zizania aquatica L.
Danthonia compressa Aust.
Trisetum subspicatum (L.) Bv.
Bromus ciliatus L.
Panicum Crus-galli L.
Poa compressa L.
Avena striata pallida Pk.
Savastana alpina (Sw.)
Elymus Canadensis L.
Andropogon scoparius Mx.

Botrychium obliquum <i>Muhl.</i>	Sphagnum intermedium <i>Hoffm.</i>
Asplenium Filix-foemina (<i>L.</i>) <i>Bernh.</i>	S. Wulfianum <i>Girgen.</i>
Lycopodium Selago <i>L.</i>	S. strictum <i>Lindl.</i>
L. complanatum <i>L.</i>	Jungermannia gracilis <i>Scleich.</i>
L. obscurum <i>L.</i>	Russula foetens (<i>Pers.</i>) <i>Fr.</i>
L. clavatum <i>L.</i>	Stropharia aeruginosa <i>Curt.</i>
L. annot. pungens <i>Spring.</i>	Gymnosporangium clavariiforme <i>Rees</i>
Sphagnum acutifolium <i>Ehrh.</i>	Hydnum Erinaceus <i>Bull.</i>
S. squarrosus <i>Pers.</i>	H. Caput-ursi <i>Fr.</i>
S. cuspidatum <i>Ehrh.</i>	H. Cap. brevispineum <i>Pk.</i>

B

CONTRIBUTORS AND THEIR CONTRIBUTIONS

Mrs E. C. Anthony, Gouverneur, N. Y.

Uromyces caryophyllinus (*Schrank*) *Schroet.*

Mrs L. A. Millington, New Russia, N. Y.

Circaea alpina *L.*

Mrs C. S. Maurice, Athens, Pa.

Lepiota rhacodes *Vitt.*

Mrs M. A. Knickerbocker, New York.

Hypholoma sublateritium *Schaeff.* | Collybia velutipes *Curt.*

Miss L. W. Roberts, Syracuse, N. Y.

Glaucium Glaucium (*L.*) *Karst.*

Mrs E. G. Britton, New Dorp, N. Y.

Bryoziphium Norvegicum (*Brid.*) *Mitt.*

Mrs E. Watrous, New York.

Conopholis Americana *Wallr.*

L. M. Underwood, New York.

Gymnosporangium Nidus-avis *Thaxter*

F. G. Howland, Saratoga, N. Y.

Lepiota solidipes *Pk.*

Morchella esculenta (*L.*) *Pers.*

Cantharellus cinnabarinus *Schw.*

M. deliciosa *Fr.*

F. E. Fenno, Barton, N. Y.

Oxalis violacea *L.*

Eragrostis pilosa (*L.*) *Bv.*

Cuscuta Coryli *Engelm.*

E. hypnoides (*Lam.*) *B. S. P.*

Carex laxiflora *Lam.*

E. Frankii *Steud.*

C. pedunculata *Muhl.*

E. Purshii *Schrad.*

Cinna arundinacea *L.*

E. major *Host.*

E. A. Burt, Middlebury, Vt.

Lepiota rubrotincta *Pk.*

Cortinarius pholideus *Fr.*

Clitocybe eccentrica *Pk.*

Polyporus planus *Pk.*

Hygrophorus pudorinus *Fr.*

P. maculatus *Pk.*

Lactarius pubescens *Fr.*

Poria vaporaria *Fr.*

Pholiota discolor *Pk.*

Hydnum albidum *Pk.*

Crepidotus dorsalis *Pk.*

Anthostoma adustum (*C. & P.*) *Sacc.*

C. versutus *Pk.*

- Merulius rubellus *Pk.* F. J. Braendle, Washington, D. C.
 Irpex canescens *Fr.* E. C. Howe, Troy, N. Y.
 Polyporus admirabilis *Pk.* H. P. Burt, New Bedford, Mass.
 Cortinarius cinnabarinus *Fr.* G. E. Morris, Waltham, Mass.
 | Hygrophorus Morrisii *Pk.*
 Clitocybe monadelphæ *Morg.* H. W. Barratt, Poughkeepsie, N. Y.
 Stropharia aeruginosa (*Curt.*) *Fr.* F. R. Rathbun, Auburn, N. Y.
 Boletus scaber *Fr.* | Polyporus flavovirens *B. & R.*
 Charles McIlvaine, Colebrook, Pa.
 Lepiota rhacodes *Vitt.* | Cyclomyces Greenii *Berk.*
 Flammula aliena *Pk.* |
 P. H. Dudley, New York.
 Lentinus lepideus *Fr.* | Geaster triplex *Jungh.*
 G. H. Nye, Auburn, N. Y.
 Hydnum Caput-ursi brevispineum *Pk.*
 G. H. Nye and W. G. Cowell, Auburn, N. Y.
 Hydnum Caput-ursi *Fr.* | Hydnum Erinaceus *Bull.*
 J. C. Arthur, Lafayette, Ind.
 Puccinia Windsorizæ *Schw.* | Puccinia Bolleyana *Sacc.*
 M. S. Baxter, Rochester, N. Y.
 Salsola Tragus *L.* F. N. Otis, Catskill, N. Y.
 Hypholoma sublateritium *Schæff.*
 G. E. Francis, Worcester, Mass.
 Tricholoma piperatum *Pk.* | Hygrophorus sordidus *Pk.*
 Craterellus corrugis *Pk.* | H. hypothejus *Fr.*
 E. B. Sterling, Trenton, N. J.
 Lentodium squamulosum *Morg.*
 R. F. Dearborn, Lynn, Mass.
 Agaricus maritimus *Pk.* Hollis Webster, East Milton, Mass.
 Lepiota rhacodes *Vitt.* Elam Bartholomew, Rockport, Kan.
 Pholiota comosa *Fr.* J. J. Davis, Racine, Wis.
 Doassansia Zizaniæ *Davis* | Physoderma Plantago *Wallr.*

C

LIST OF CHANGED NAMES

608 changed names, 26 double names

<i>Manual</i>	<i>Illustrated flora</i>
<i>Actaea</i> spicata var. rubra <i>Ait.</i>	<i>Actaea</i> rubra (<i>Ait.</i>) <i>Willd.</i>
<i>Anemone</i> Pennsylvanica <i>L.</i>	<i>Anemone</i> Canadensis <i>L.</i>
A. nemorosa <i>L.</i>	A. quinquefolia <i>L.</i>
<i>Hepatica</i> acutiloba <i>DC.</i>	<i>Hepatica</i> acuta (<i>Pursh</i>) <i>Britton</i>
H. triloba <i>Chaix.</i>	H. <i>Hepatica</i> (<i>L.</i>) <i>Karst.</i>
<i>Anemonella</i> thalictroides <i>Spach</i>	<i>Syndesmon</i> thalictroides (<i>L.</i>) <i>Heff.</i>
<i>Ranunculus</i> multifidus <i>Pursh</i>	<i>Ranunculus</i> delphinifolius <i>Torr.</i>
R. abortivus var. micranthus <i>Gray</i>	R. micranthus <i>Nutt.</i>
R. ambigens <i>Wats.</i>	R. obtusiusculus <i>Raf.</i>
R. Flammula var. reptans <i>E.</i> <i>Meyer</i>	R. reptans <i>L.</i>
R. circinatus <i>Sibth.</i>	<i>Batrachium</i> divaricatum (<i>Schrank</i>)
R. aquatilis var. trichophyllus <i>Gray</i>	B. trichophyllum (<i>Chaix.</i>) <i>Bosch</i>
R. Ficaria <i>L.</i>	<i>Ficaria</i> <i>Ficaria</i> (<i>L.</i>) <i>Karst.</i>
R. Cymbalaria <i>Pursh</i>	<i>Oxygraphis</i> Cymbalaria (<i>Pursh</i>) <i>Prantl.</i>
<i>Magnolia</i> glauca <i>L.</i>	<i>Magnolia</i> Virginiana <i>L.</i>
<i>Brasenia</i> peltata <i>Pursh</i>	<i>Brasenia</i> purpurea (<i>Mx.</i>) <i>Casp.</i>
<i>Nymphaea</i> odorata <i>Ait.</i>	<i>Castalia</i> odorata (<i>Dryand</i>) <i>W. & W.</i>
N. reniformis <i>DC.</i>	C. tuberosa (<i>Paine</i>) <i>Greene</i>
<i>Nuphar</i> advena <i>Ait.</i>	<i>Nymphaea</i> advena <i>Soland.</i>
N. Kalmianum <i>Ait.</i>	N. microphylla <i>Pers.</i>
<i>Glaucium</i> luteum <i>Scop.</i>	<i>Glaucium</i> <i>Glaucium</i> (<i>L.</i>) <i>Karst.</i>
<i>Adlumia</i> cirrhosa <i>Raf.</i>	<i>Adlumia</i> fungosa (<i>Ait.</i>) <i>Greene</i>
<i>Dicentra</i> Cucullaria <i>DC.</i>	<i>Bicuculla</i> Cucullaria (<i>L.</i>) <i>Mills.</i>
D. Canadensis <i>DC.</i>	B. Canadensis (<i>Goldie</i>) <i>Mills.</i>
D. eximia <i>DC.</i>	B. eximia (<i>Ker.</i>) <i>Mills.</i>
<i>Corydalis</i> glauca <i>Pursh</i>	<i>Capnoides</i> sempervirens (<i>L.</i>) <i>Borck.</i>
C. flavula <i>Raf.</i>	C. flavulum (<i>Raf.</i>) <i>Kuntze</i>
C. aurea <i>Willd.</i>	C. aureum (<i>Willd.</i>) <i>Kuntze</i>
<i>Cardamine</i> rhomboidea <i>DC.</i>	<i>Cardamine</i> bulbosa (<i>Schreb.</i>) <i>B. S. P.</i>
C. rhomboidea var. purpurea <i>Torr.</i>	C. purpurea (<i>Torr.</i>) <i>Britton</i>
<i>Arabis</i> perfoliata <i>Lam.</i>	<i>Arabis</i> glabra (<i>L.</i>) <i>Bernh.</i>
A. confinis <i>Wats.</i>	A. brachycarpa (<i>T. & G.</i>) <i>Britton</i>
<i>Alyssum</i> calycinum <i>L.</i>	<i>Alyssum</i> alyssoides (<i>L.</i>) <i>Gouan</i>
<i>Nasturtium</i> officinale <i>R. Br.</i>	<i>Roripa</i> <i>Nasturtium</i> (<i>L.</i>) <i>Rusby</i>
N. sylvestre <i>R. Br.</i>	R. sylvestris (<i>L.</i>) <i>Bess.</i>
N. palustre <i>DC.</i>	R. palustris (<i>L.</i>) <i>Bess.</i>
N. palustre var. hispidum <i>Gray</i>	R. hispida (<i>Dew.</i>) <i>Britton</i>
N. lacustre <i>Gray</i>	R. Americana (<i>Gray</i>) <i>Britton</i>

Manual

Nasturtium Armoracia Fries
Barbarea vulgaris var. *stricta Gray*
B. vulgaris var. *arcuata Gray*
Sisymbrium Alliaria Scop.
S. canescens Nutt.
S. Thaliana Gaud.
Brassica Sinapisrum Boiss.
B. alba Boiss.
Capsella Bursa-pastoris Moench
Lepidium intermedium Gray
Cakile Americana Nutt.
Lechea major Mx.
L. thymifolia Mx.
L. minor var. *maritima Gray*
Viola palmata var. *cucullata Gray*
V. blanda var. *renifolia Gray*
V. pubescens var. *scabriuscula T. & G.*
V. canina var. *Muhlenbergii Gray*
Solea concolor Ging.
Saponaria Vaccaria L.
Silene Cucubulus Wibel
S. Pennsylvanica Mx.
Lychnis vespertina Sibth.
L. diurna Sibth.
L. Githago Lam.
Arenaria Michauxii Hook. f.
A. lateriflora L.
A. peploides L.
Stellaria media Smith
S. longifolia Muhl.
S. longipes Goldie
S. graminea L.
S. borealis Bigel.
Cerastium nutans Raf.
Buda marina Dumort.
B. rubra Dumort.
Ascyrum Crux-Andreeae L.
Hypericum Canadense var. *majus Gray*
H. nudicaule Walt.
Elodes campanulata Pursh
Malva crispa L.
Abutilon Avicennae Gaertn.
Oxalis corniculata var. *stricta Sav.*
Impatiens pallida Nutt.
I. fulva Nutt.
Nemopanthes fascicularis Raf.

Illustrated flora

Roripa Armoracia (L.) Hitchc.
Barbarea stricta Andrz.
B. Barbarea (L.) MacM.
Alliaria Alliaria (L.) Britton
Sophia pinnata (Walt.) Britton
Stenophragma Thaliana (L.) Celak.
Brassica arvensis (L.) B. S. P.
Sinapis alba L.
Bursa Bursa-pastoris (L.) Britton
Lepidium apetalum Willd.
Cakile edentula (Bigel.) Hook.
Lechea villosa Ell.
L. minor L.
L. maritima Leggett
Viola obliqua Hill
V. renifolia Gray
V. scabriuscula (T. & G.) Schw.
V. Labradorica Schrank
Cubelium concolor (Forst.) Raf.
Vaccaria Vaccaria (L.) Britton
Silene vulgaris (Moench) Garcke
S. Caroliniana Walt.
Lychnis alba Mill.
L. dioica L.
Agrostemma Githago L.
Arenaria stricta Mx.
Mochringia lateriflora (L.) Fenzl.
Ammodenia peploides (L.) Rupr.
Alsine media L.
A. longifolia (Muhl.) Britton
A. longipes (Goldie) Coville
A. graminea (L.) Britton
A. borealis (Bigel.) Britton
Cerastium longipedunculatum Muhl.
Tissa marina (L.) Britton
T. rubra (L.) Britton
Ascyrum hypericoides L.
Hypericum majus (Gray) Britton
Sarothra gentianoides L.
Triadenum Virginicum (L.) Raf.
Malva verticillata crispa L.
Abutilon Abutilon (L.) Rusby
Oxalis stricta L.
Impatiens aurea Muhl.
I. biflora Walt.
Illicioides mucronata (L.) Britton

Manual

Euonymus Americanus var. *obovatus* T. & G.
Vitis riparia Mx.
Ampelopsis quinquefolia Mx.
Acer saccharinum Wang.
A. saccharinum var. *nigrum* T. & G.
A. dasycarpum Ehrh.
Negundo aceroides Moench
Rhus typhina L.
R. venenata DC.
R. Toxicodendron L.
R. Canadensis Marsh.
Polygala sanguinea L.
P. verticillata var. *ambigua* Gray
Tephrosia Virginiana Pers.
Astragalus Canadensis L.
A. Cooperi Gray
Desmodium nudiflorum DC.
D. acuminatum DC.
D. rotundifolium DC.
D. canescens DC.
D. cuspidatum T. & G.
D. laevigatum DC.
D. viridiflorum Beck
D. Dillenii Darl.
D. paniculatum DC.
D. Canadense DC.
D. rigidum DC.
D. ciliare DC.
D. Marilandicum F. Boott
Lespedeza procumbens Mx. (*in part*)
L. reticulata Pers.
L. Stuvei var. *intermedia* Wats.
L. polystachya Mx.
Stylosanthes elatior Sw.
Vicia Americana var. *linearis* Wats.
V. sativa var. *angustifolia* Ser.
Lathyrus palustris var. *myrtifolius* Gray
Apios tuberosa Moench
Phaseolus perennis Walt.
Strophostyles angulosa Ell.
S. peduncularis Ell.
Amphicarpaea monoica Nutt.
Galactia pilosa Ell.
Gymnocladus Canadensis Lam.
Physocarpus opulifolius Maxim.

Illustrated flora

Euonymus obovatus Nutt.
Vitis vulpina L.
Parthenocissus quinquefolia (L.) Planch.
Acer Saccharum Marsh.
A. nigrum Mx.
A. saccharinum L.
A. Negundo L.
Rhus hirta (L.) Sudw.
R. Vernix L.
R. radicans L.
R. aromatica Ait.
Polygala viridescens L.
P. ambigua Nutt.
Cracca Virginiana L.
Astragalus Carolinianus L.
Phaca neglecta T. & G.
Meibomia nudiflora (L.) Kuntze
M. grandiflora (Walt.) Kuntze
M. Michauxii Vaill.
M. canescens (L.) Kuntze
M. bracteosa (Mx.) Kuntze
M. laevigata (Nutt.) Kuntze
M. viridiflora (L.) Kuntze
M. Dillenii (Darl.) Kuntze
M. paniculata (L.) Kuntze
M. Canadensis (L.) Kuntze
M. rigida (Ell.) Kuntze
M. obtusa (Muhl.) Kuntze
M. Marylandica (L.) Kuntze
Lespedeza repens (L.) Bart.
L. Virginica (L.) Britton
L. frutescens (L.) Britton
L. hirta (L.) Ell.
Stylosanthes biflora (L.) B. S. P.
Vicia linearis (Nutt.) Greene
V. angustifolia Roth
Lathyrus myrtifolius Muhl.
Apios Apios (L.) MacM.
Phaseolus polystachyus (L.) B. S. P.
Strophostyles helvola (L.) Britton
S. umbellata (Muhl.) Britton
Falcata comosa (L.) Kuntze
Galactia volubilis (L.) Britton
Gymnocladus dioica (L.) Koch
Opulaster opulifolius (L.) Kuntze

Manual

Gillenia trifoliata Moench
G. stipulacea Nutt.
Rubus triflorus Richardson
R. villosus var. *humifusus T. & G.*
Geum album Gmelin
G. triflorum Pursh
Fragaria Indica L.
Potentilla Norvegica L.
P. supina L.
P. palustris Scop.
Poterium Canadense B. & H.
P. Sanguisorba L.
Rosa Engelmanni Wats.
R. Sayi Schw.
R. lucida Ehrh.
Pyrus coronaria L.
P. arbutifolia L. f.
P. arbutifolia var. *melanocarpa Hook.*
P. Americana DC.
P. sambucifolia C. & S.
Crataegus Pyracantha Pers.
C. parviflora Ait.
C. coccinea var. *mollis T. & G.*
C. coccinea var. *macracantha Dudl.*
Amelanchier Canadensis var. *rotundifolia T. & G.*
A. Canadensis var. *oblongifolia T. & G.*
Ribes rubrum var. *subglandulosum Maxim.*
Tillaea simplex Nutt.
Drosera intermedia var. *Americana DC.*
Myriophyllum ambiguum Nutt.
Proserpinaca pectinacea Lam.
Callitriche deflexa var. *Austini Hegelm.*
C. verna L.
C. autumnalis L.
Cuphea viscosissima Jacq.
Epilobium angustifolium L.
E. glandulosum Lehm.
Oenothera biennis L.
OE. biennis var. *cruciata T. & G.*
OE. biennis var. *grandiflora Lindl.*
OE. pumila L.
OE. fruticosa L.
OE. fruticosa var. *linearis Wats.*
OE. fruticosa var. *humifusa Allen*

Illustrated flora

Porteranthus trifoliatus (L.) Britton
P. stipulatus (Muhl.) Britton
Rubus Americanus (Pers.) Britton
R. Baileyanus Britton
Geum Canadense Jacq.
G. ciliatum Pursh
Duchesnea Indica (Andr.) Focke
Potentilla Monspeliensis L.
P. paradoxa Nutt.
Comarum palustre L.
Sanguisorba Canadensis L.
S. Sanguisorba (L.) Britton
Rosa acicularis Lindl.
R. acicularis Lindl.
R. humilis lucida (Ehrh.) Best
Malus coronaria (L.) Mill.
Aronia arbutifolia (L.) Ell.
A. nigra (Willd.) Britton
Sorbus Americana Marsh.
S. sambucifolia (C. & S.) Roem.
Cotoneaster Pyracantha (L.) Spach
Crataegus uniflora Moench
C. mollis (T. & G.) Scheele
C. macracantha Lodd.
Amelanchier rotundifolia (Mx.) Roem.
A. Botryapium (L. f.) DC.
Ribes rubrum L.
Tillaea aquatica L.
Drosera intermedia Hayne
Myriophyllum humile (Raf.) Morong
Proserpinaca pectinata Lam.
Callitriche Austini Engelm.
C. palustris L.
C. bifida (L.) Morong
Parsonsia petiolata (L.) Rusby
Chamaenerion angustifolium (L.) Scop.
Epilobium adenocaulon Haussk.
Onagra biennis (L.) Scop.
O. cruciata (Nutt.) Small
O. biennis grandiflora (Ait.) Lindl.
Kneiffia pumila (L.) Spach
K. fruticosa (L.) Raimann
K. linearis (Mx.) Spach
K. Alleni (Britton) Small

Manual

Echinocystis lobata *T. & G.*
 Opuntia vulgaris *Mill.*
 Angelica hirsuta *Muhl.*
 Conioselinum Canadense *T. & G.*
 Tiedemannia rigida *C. & R.*
 Cryptotaenia Canadensis *DC.*
 Discopleura capillacea *DC.*
 Osmorrhiza brevistylis *DC.*
 O. longistylis *DC.*
 Sanicula Marylandica var. Canadensis
 Torr.
 Aralia quinquefolia *D. & P.*
 A. trifolia *D. & P.*
 Thaspium aureum *Nutt.*

 T. aureum var. atropurpureum
 C. & R.
 Crantzia lineata *Nutt.*
 Carum Petroselinum *Benth.*
 Cornus sericea *L.*
 C. paniculata *L'Her.*
 Sambucus racemosa *L.*
 Viburnum lantanoides *Mx.*
 Symphoricarpos vulgaris *Mx.*

 S. racemosus var. pauciflorus
 Robbins
 Lonicera glauca *Hill*
 Diervilla trifida *Moench*
 Houstonia purpurea var. ciliolata *Gray*
 H. purpurea var. longifolia *Gray*
 Oldenlandia glomerata *Mx.*
 Galium trifidum var. latifolium *Torr.*
 G. trifidum var. pusillum *Gray*
 Valerianella olitoria *Poll.*
 Mikania scandens *L.*
 Eupatorium teucrifolium *Willd.*
 E. rotundifolium var. ovatum
 Torr.
 Liatris cylindracea *Mx.*
 L. scariosa *Willd.*
 L. spicata *Willd.*
 Solidago latifolia *L.*
 S. bicolor var. concolor *T. & G.*
 S. Virgaurea var. alpina *Bigel.*
 S. humilis *Pursh*

Illustrated flora

Micrampelis lobata (*Mx.*) *Greene*
 Opuntia Opuntia (*L.*) *Coult.*
 Angelica villosa (*Walt.*) *B. S. P.*
 Conioselinum Chinense (*L.*) *B. S. P.*
 Oxypolis rigidus (*L.*) *Britton*
 Deringa Canadensis (*L.*) *Kuntze*
 Ptilimnium capillaceum (*Mx.*) *Hollick*
 Washingtonia Claytoni (*Mx.*) *Britton*
 W. longistylis (*Torr.*) *Britton*
 Sanicula Canadensis *L.*

 Panax quinquefolium *L.*
 P. trifolium *L.*
 Thaspium trifoliatum aureum (*Nutt.*)
 Britton
 T. trifoliatum (*L.*) *Britton*

 Lilaeopsis lineata (*Mx.*) *Greene*
 Apium Petroselinum *L.*
 Cornus Amonum *Mill.*
 C. candidissima *Marsh.*
 Sambucus pubens *Mx.*
 Viburnum alnifolium *Marsh.*
 Symphoricarpos Symphoricarpos (*L.*)
 Mac M.
 S. pauciflorus (*Robbins*)
 Britton
 Lonicera dioica *L.*
 Diervilla Diervilla (*L.*) *Mac M.*
 Houstonia ciliolata *Torr.*
 H. longifolia *Gaertn.*
 Oldenlandia uniflora *L.*
 Galium tinctorium *L.*
 G. trifidum *L.*
 Valerianella Locusta (*L.*) *Bettke*
 Willugbaea scandens (*L.*) *Kuntze*
 Eupatorium verbenaeifolium *Mx.*
 E. pubescens *Muhl.*

 Lacinaria cylindracea (*Mx.*) *Kuntze*
 L. scariosa (*L.*) *Hill*
 L. spicata (*L.*) *Kuntze*
 Solidago flexicaulis *L.*
 S. hispida *Muhl.*
 S. alpestris *W. & K.*
 S. Purshii *Porter*

Manual

Solidago speciosa var. *angustata* T. & G.
 S. *neglecta* var. *linoides* Gray
 S. *Canadensis* var. *scabra* T. & G.
 S. *lanceolata* L.
 S. *tenuifolia* Pursh
Sericocarpus conyzoides Nees
 S. *solidagineus* Nees
Aster corymbosus Ait.
 A. *patens* var. *phlogifolius* Nees
 A. *ericoides* var. *Pringlei* Gray
 A. *diffusus* Ait.
 A. *diffusus* var. *thyrsoideus* Gray
 A. *diffusus* var. *bifrons* Gray
 A. *diffusus* var. *hirsuticaulis* Gray
 A. *puniceus* var. *laevicaulis* Gray
 A. *umbellatus* Mill.
 A. *infirmus* Mx.
 A. *linariifolius* L.
Erigeron Canadensis L.
 E. *strigosus* Muhl.
 E. *bellidifolius* Muhl.
Filago Germanica L.
Gnaphalium polycephalum Mx.
Heliopsis laevis Pers.
Lepachys pinnata T. & G.
Actinomeris squarrosa Nutt.
Coreopsis trichosperma Mx.
 C. *discoidea* T. & G.
Bidens connata var. *comosa* Gray
 B. *chrysanthemoides* Mx.
Senecio aureus var. *obovatus* T. & G.
 S. *aureus* var. *Balsamitae* T. & G.
Cacalia suaveolens L.
 C. *atriplicifolia* L.
Arctium Lappa var. *tomentosum* Gray
 A. *Lappa* var. *minus* Gray
Cnicus lanceolatus Hoffm.
 C. *horridulus* Pursh
 C. *altissimus* Willd.
 C. *altissimus* var. *discolor* Gray
 C. *muticus* Pursh
 C. *pumilus* Torr.
 C. *arvensis* Hoffm.
Krigia Virginica Willd.
 K. *amplexicaulis* Nutt.
Prenanthes racemosa Mx.

Illustrated flora

Solidago rigidiuscula (T. & G.) Porter
 S. *uniligulata* (DC.) Porter
 S. *Canadensis* *scabriuscula* Porter
Euthamia graminifolia (L.) Nutt.
 E. *Caroliniana* (L.) Greene.
Sericocarpus asteroides (L.) B. S. P.
 S. *linifolius* (L.) B. S. P.
Aster divaricatus L.
 A. *phlogifolius* Muhl.
 A. *Pringlei* (Gray) Britton
 A. *lateriflorus* (L.) Britton
 A. *lateriflorus thyrsoideus* (Gr.) Sheldon
 A. *lateriflorus grandis* Porter
 A. *hirsuticaulis* Lindl.
 A. *puniceus firmus* Nees
Doellingeria umbellata (Mill.) Nees
 D. *infirmus* (Mx.) Greene
Ionactis linariifolius (L.) Greene
Leptilon Canadense (L.) Britton
Erigeron ramosus (Walt.) B. S. P.
 E. *pulchellus* Mx.
Gifola Germanica (L.) Dumort.
Gnaphalium obtusifolium L.
Heliopsis helianthoides (L.) B. S. P.
Ratibida pinnata (Vent.) Barnhart
Verbesina alternifolia (L.) Britton
Bidens trichosperma (Mx.) Britton
 B. *discoidea* (T. & G.) Britton
 B. *comosa* (Gray) Wiegand
 B. *laevis* (L.) B. S. P.
Senecio obovatus Muhl.
 S. *Balsamitae* Muhl.
Synosma suaveolens (L.) Raf.
Mesadenia atriplicifolia (L.) Raf.
Arctium tomentosum (Lam.) Schk.
 A. *minus* Schk.
Carduus lanceolatus L.
 C. *spinosissimus* Walt.
 C. *altissimus* L.
 C. *discolor* (Muhl.) Nutt.
 C. *muticus* (Mx.) Pers.
 C. *odoratus* (Muhl.) Porter
 C. *arvensis* (L.) Robs.
Adopogon Carolinianum (Walt.) Britton
 A. *Virginicum* (L.) Kuntze
Nabalus racemosus (Mx.) DC.

Manual

Prenanthes alba L.
 P. *serpentaria* Pursh
 P. *serpentaria* var. *nana* Gray
 P. *altissima* L.
 P. *Boottii* Gray
Taraxacum officinale Weber
Lactuca integrifolia Bigel.
 L. *acuminata* Gray
 L. *leucophaea* Gray
Specularia perfoliata A. DC.
Vaccinium corymbosum var. *atrococcum*
 Gray
 V. *Oxycoccus* L.
 V. *macrocarpon* Ait.
Chiogenes serpyllifolia Salisb.
Andromeda Mariana L.
 A. *ligustrina* Muhl.
Cassandra calyculata Don.
Rhododendron viscosum Torr.
 R. *viscosum* var. *glaucum*
 Gray
 R. *viscosum* var. *nitidum*
 Gray
 R. *nudiflorum* Torr.
 R. *calendulaceum* Torr.
 R. *Rhodora* Don.
Ledum latifolium Ait.
Moneses grandiflora Salisb.
Pyrola rotundifolia var. *asarifolia* Hook.
 P. *rotundifolia* var. *uliginosa* Gray
Monotropa Hypopitys L.
Statice Limonium var. *Caroliniana* Gray
Steironema longifolium Gray
Lysimachia stricta Ait.
 L. *thyrsiflora* L.
Samolus Valerandi var. *Americanus* Gr.
Fraxinus pubescens Lam.
 F. *viridis* Mx.
 F. *sambucifolia* Lam.
Asclepias Cornuti Dec.
 A. *incarnata* var. *pulchra* Pers.
 A. *phytolaccoides* Pursh
Vincetoxicum nigrum Moench
Erythraea ramosissima Pers.
Sabbatia chloroides Pursh
Gentiana serrata Gunner

Illustrated flora

Nabalus albus (L.) Hook.
 N. *serpentarius* (Pursh) Hook.
 N. *nanus* (Bigel.) DC.
 N. *altissimus* (L.) Hook.
 N. *Boottii* DC.
Taraxacum Taraxacum (L.) Karst.
Lactuca sagittifolia Ell.
 L. *villosa* Jacq.
 L. *spicata* (Lam.) Hitchc.
Legouzia perfoliata (L.) Britton
Vaccinium atrococcum (Gray) Heller

Oxycoccus Oxycoccus (L.) Mac M.
 O. *macrocarpus* (Ait.) Pers.
Chiogenes hispidula (L.) T. & G.
Pieris Mariana (L.) B. & H.
Xolisma ligustrina (L.) Britton.
Chamaedaphne calyculata (L.) Moench
Azalea viscosa L.
 A. *viscosa glauca* Mx.

 A. *viscosa nitida* (Pursh) Britton

 A. *nudiflora* L.
 A. *lutea* L.
Rhodora Canadensis L.
Ledum Groenlandicum Oeder
Moneses uniflora (L.) Gray
Pyrola asarifolia Mx.
 P. *uliginosa* Torr.
Hypopitys Hypopitys (L.) Small
Limonium Carolinianum (Walt.) Britton
Steironema quadriflorum (Sims) Hitchc.
Lysimachia terrestris (L.) B. S. P.
Naumbergia thyrsiflora (L.) Duby
Samolus floribundus H. B. K.
Fraxinus Pennsylvanica Marsh.
 F. *lanceolata* Borck.
 F. *nigra* Marsh.
Asclepias Syriaca L.
 A. *pulchra* Ehrh.
 A. *exaltata* (L.) Muhl.
Cynanchum nigrum (L.) Pers.
Erythraea pulchella (Sw.) Fries
Sabbatia dodecandra (L.) B. S. P.
Gentiana detonsa Rottb.

Manual

Gentiana quinqueflora Lam.
 G. *linearis* var. *lanceolata* Gray
Halenia deflexa Griseb.
Bartonia tenella Muhl.
Polemonium caeruleum Gray
Echinosperrum Virginicum Lehm.
 E. *Lappula* Lehm.
Myosotis verna Nutt.
Lithospermum hirtum Lehm.
Convolvulus sepium var. *Americanus* Sims
Cuscuta tenuiflora Engelm.
 C. *inflexa* Engelm.
Physalis Virginiana Mill.
Nicandra physaloides Gaertn.
Linaria vulgaris Mill.
 L. *Elatine* Mill.
Scrophularia nodosa var. *Marilandica*
 Gray
Pentstemon pubescens Soland.
 P. *laevigatus* Soland.
Limosella aquatica var. *tenuifolia* Hoffm.
Ilysanthes riparia Raf.
Veronica Anagallis L.
 V. *Buxbaumii* Tenore
Gerardia pedicularia L.
 G. *flava* L.
 G. *quercifolia* Pursh
 G. *purpurea* var. *paupercula* Gray
Melampyrum Americanum Mx.
Epiphegus Virginiana Bart.
Aphyllon uniflorum Gray
Catalpa bignonioides Walt.
Martynia proboscidea Glox.
Isanthus caeruleus Mx.
Mentha viridis L.
 M. *aquatica* var. *crispa* Benth.
 M. *Canadensis* var. *glabrata* Benth.
Lycopus sinuatus Ell.
Cunila Mariana L.
Pycnanthemum lanceolatum Pursh
 P. *linifolium* Pursh
 P. *muticum* Pers.
 P. *muticum* var. *pilosum* Gray
 P. *Torreyi* Benth.
 P. *clinopodioides* Gray
 P. *incanum* Mx.

Illustrated flora

Gentiana quinquefolia L.
 G. *rubricaulis* Schw.
Tetragonanthus deflexus (Smith) Kuntze
Bartonia Virginica (L.) B. S. P.
Polemonium Van Bruntiae Britton
Lappula Virginiana (L.) Greene
 L. *Lappula* (L.) Karst.
Myosotis Virginica (L.) B. S. P.
Lithospermum Gmelini (Mx.) Hitchc.
Convolvulus sepium L.
Cuscuta Cephalanthi Engelm.
 C. *Coryli* Engelm.
Physalis heterophylla Nees
Physalodes Physalodes (L.) Britton
Linaria Linaria (L.) Karst.
Elatinoides Elatine (L.) Wettst.
Scrophularia Marylandica L.

Pentstemon hirsutus (L.) Willd.
 P. *Pentstemon* (L.) Britton
Limosella tenuifolia Hoffm.
Ilysanthes gratioloides (L.) Benth.
Veronica Anagallis-aquatica L.
 V. *Byzantina* (S. & S.) B. S. P.
Dasystema Pedicularia (L.) Benth.
 D. *flava* (L.) Wood
 D. *Virginica* (L.) Britton
Gerardia paupercula (Gray) Britton
Melampyrum lineare Lam.
Leptamnium Virginianum (L.) Raf.
Thalesia uniflora (L.) Britton
Catalpa Catalpa (L.) Karst.
Martynia Louisiana Mill.
Isanthus brachyatus (L.) B. S. P.
Mentha spicata L.
 M. *crispa* L.
 M. *Canadensis* L. (in part)
Lycopus Americanus Muhl.
Cunila organoides (L.) Britton
Koellia Virginiana (L.) MacM.
 K. *flexuosa* (Walt.) MacM.
 K. *mutica* (Mx.) Britton
 K. *pilosa* (Nutt.) Britton
 K. *verticillata* (Mx.) Kuntze
 K. *clinopodioides* (T. & G.) Kuntze
 K. *incana* (L.) Kuntze

Manual

- Calamintha Clinopodium *Benth.*
 C. Nuttallii *Gray*
 Lophanthus nepetoides *Benth.*
 L. scrophulariaefolius *Benth.*
- Nepeta Glechoma *Benth.*
 Brunella vulgaris *L.*
 Stachys aspera var. glabra *Gray*
 Plantago decipiens *Barneoud*
 P. Patagonica var. aristata *Gray*
 P. pusilla *Nutt.*
 Amarantus hypochondriacus *L.*
 A. paniculatus *L.*
- A. chlorostachys *Willd.*
 A. albus *L.*
 Acnida tuberculata var. subnuda *Wats.*
- Chenopodium capitatum *Wats.*
 C. ambrosioides var. anthelminticum *Gr.*
 Atriplex patulum var. hastatum *Gr.*
 A. patulum var. littorale *Gr.*
 Salicornia mucronata *Bigel.*
 Suaeda linearis *Moq.*
 Rumex maritimus *L.*
 Fagopyrum esculentum *Moench*
 Polygonum lapathifolium var. incarnatum *Wats.*
- P. Muhlenbergii *Wats.*
 P. acre *H. B. K.*
 P. dumetorum var. scandens *Gr.*
 P. cuspidatum *S. & Z.*
 Arceuthobium pusillum *Pk.*
 Euphorbia Preslii *Guss.*
 Acalypha Virginica var. gracilescens *Muell.*
 Maclura aurantiaca *Nutt.*
 Laportea Canadensis *Gaud.*
 Pilea pumila *Gray*
 Carya alba *Nutt.*
 C. sulcata *Nutt.*
 C. tomentosa *Nutt.*
 C. microcarpa *Nutt.*
 C. porcina *Nutt.*
 C. amara *Nutt.*

Illustrated flora

- Clinopodium vulgare *L.*
 C. glabrum (*Nutt.*) *Kuntze*
 Agastache nepetoides (*L.*) *Kuntze*
 A. scrophulariaefolia (*Willd.*) *Kuntze*
 Glecoma hederacea *L.*
 Prunella vulgaris *L.*
 Stachys tenuifolia *Willd.*
 Plantago maritima *L.*
 P. aristata *Mx.*
 P. elongata *Pursh*
 Amaranthus hybridus *L. (in part)*
 A. hybridus paniculatus (*L.*) *U. & B.*
 A. hybridus *L. (in part)*
 A. graecizans *L.*
 Acnida tamariscina tuberculata (*Moq.*) *U. & B. (in part)*
 Blitum capitatum *L.*
 Chenopodium anthelminticum *L.*
- Atriplex hastata *L.*
 A. patula *L.*
 Salicornia Bigelovii *Torr.*
 Dondia Americana (*Pers.*) *Britton*
 Rumex persicarioides *L.*
 Fagopyrum Fagopyrum (*L.*) *Karst.*
 Polygonum incarnatum *Ell.*
- P. emersum (*Mx.*) *Britton.*
 P. punctatum *Ell.*
 P. scandens *L.*
 P. Zuccarinii *Small*
 Razoumofskya pusilla (*Pk.*) *Kuntze*
 Euphorbia nutans *Lag.*
 Acalypha gracilescens *Gray*
- Toxylon pomiferum *Raf.*
 Urticastrum divaricatum (*L.*) *Kuntze*
 Adicea pumila (*L.*) *Raf.*
 Hicoria ovata (*Mill.*) *Britton*
 H. laciniosa (*Mx. f.*) *Sarg.*
 H. alba (*L.*) *Britton*
 H. microcarpa (*Nutt.*) *Britton*
 H. glabra (*Mill.*) *Britton*
 H. minima (*Marsh.*) *Britton*

Manual

Myrica asplenifolia Endl.
Alnus viridis DC.
A. serrulata Willd.
Ostrya Virginica Willd.
Quercus stellata Wang.
Q. macrocarpa var. *olivaeformis* Gr.
Q. bicolor Willd.
Q. Muhlenbergii Engelm.
Q. ilicifolia Wang.
Q. coccinea var. *tinctoria* Gray
Castanea sativa var. *Americana* Wats.
Fagus ferruginea Ait.
Salix longifolia Muhl.
S. rostrata Richardson
Pinus inops Ait.
P. Banksiana Lamb.
P. mitis Mx.
Picea nigra Link.
P. nigra var. *rubra* Engelm.
P. alba Link.
Larix Americana Mx.
Chamaecyparis sphaeroidea Spach
Juniperus communis var. *alpina* Gaud.
J. Sabina var. *procumbens* Pursh
Taxus Canadensis Willd.
Elodea Canadensis Mx.
Microstylis monophyllos Lindl.
M. ophioglossoides Nutt.
Liparis liliifolia Richardson
L. Loeselii Richardson
Calypso borealis Salisb.
Tipularia discolor Nutt.
Aplectrum hiemale Nutt.
Corallorhiza innata R. Br.
Spiranthes latifolia Torr.
S. Romanzoffiana Cham.
S. cernua Richardson
S. praecox Wats.
S. gracilis Bigel.
S. simplex Gray
Goodyera repens R. Br.
G. pubescens R. Br.
G. Menziesii Lindl.
Epipactis Helleborine Crantz
Calopogon pulchellus R. Br.

Illustrated flora

Comptonia peregrina (L.) Coult.
Alnus Alnobetula (Ehrh.) Koch
A. rugosa (Du Roi) Koch
Ostrya Virginiana (Mill.) Willd.
Quercus minor (Marsh.) Sarg.
Q. macrocarpa Mx. (in part)
Q. platanoides (Lam.) Sudw.
Q. acuminata (Mx.) Sarg.
Q. nana (Marsh.) Sarg.
Q. velutina Lam.
Castanea dentata (Marsh.) Borkh.
Fagus Americana Sweet
Salix fluviatilis Nutt.
S. Bebbiana Sarg.
Pinus Virginiana Mill.
P. divaricata (Ait.) Sudw.
P. echinata Mill.
Picea Mariana (Mill.) B. S. P.
P. rubra (Lamb.) Link.
P. Canadensis (Mill.) B. S. P.
Larix laricina (Du Roi) Koch
Chamaecyparis thyoides (L.) B. S. P.
Juniperus nana Willd.
J. Sabina L.
Taxus minor (Mx.) Britton
Philotria Canadensis (Mx.) Britton
Achroanthos monophylla (L.) Greene
A. unifolia (Mx.) Raf.
Leptorchis liliifolia (L.) Kuntze
L. Loeselii (L.) MacM.
Calypso bulbosa (L.) Oakes
Tipularia unifolia (Muhl.) B. S. P.
Aplectrum spicatum (Walt.) B. S. P.
Corallorhiza Corallorhiza (L.) Karst.
Gyrostachys plantaginea (Raf.) Britton
G. Romanzoffiana (Cham.) MacM.
G. cernua (L.) Kuntze
G. praecox (Walt.) Kuntze
G. gracilis (Bigel.) Kuntze
G. simplex (Gray) Kuntze
Peramium repens (L.) Salisb.
P. pubescens (Willd.) MacM.
P. Menziesii (Lindl.) Morong
Epipactis viridiflora (Hoffm.) Reichb.
Limodorum tuberosum L.

Manual

- Pogonia pendula* *Lindl.*
Habenaria tridentata *Hook.*
H. *virescens* *Spreng.*
H. *Hookeri* *Torr.*
H. *fimbriata* *R. Br.*
Cypripedium pubescens *Willd.*
C. *spectabile* *Sw.*
Lachnanthes tinctoria *Ell.*
Belamcanda Chinensis *Adans.*
Sisyrinchium anceps *Cav.*
Hypoxis erecta *L.*
Polygonatum giganteum *Dietr.*
Smilacina racemosa *Desf.*
S. *stellata* *Desf.*
S. *trifolia* *Desf.*
Maianthemum Canadense *Desf.*
Clintonia umbellata *Torr.*
Oakesia sessilifolia *Wats.*
Trillium erythrocarpum *Mx.*
Chamaelirium Carolinianum *Willd.*
Amianthium muscaetoxicum *Gray*

Heteranthera graminea *Vahl.*
Xyris flexuosa var. *pusilla* *Gray*
Juncus Balticus var. *littoralis* *Engelm.*
J. *alpinus* var. *insignis* *Fr.*
J. *nodosus* var. *megacephalus* *Torr.*
J. *Canad.* var. *longicaudatus* *Engelm.*
J. *Canad.* var. *brachycephalus* *Engelm.*
J. *Canad.* var. *coarctatus* *Engelm.*
Luzula vernalis *DC.*
L. *spadicea* var. *melanocarpa* *Meyer*
L. *campestris* *DC.*
Sparganium simplex var. *androcladum* *Engelm.*
S. *simplex* var. *fluitans* *Engelm.*
Peltandra undulata *Raf.*
Symplocarpus foetidus *Salisb.*
Alisma Plantago *L.*
Sagittaria variabilis *Engelm.*
S. *heterophylla* *Pursh*
S. *natans* var. *lorata* *Chapm.*
Potamogeton Pennsylvanicus *Cham.*
P. *hybridus* *Mx.*
P. *rufescens* *Schrad.*

Illustrated flora

- Pogonia trianthophora* (*Sw.*) *B. S. P.*
Habenaria clavellata (*Mx.*) *Spreng.*
H. *flava* (*L.*) *Gray*
H. *Hookeriana* *Gray*
H. *grandiflora* (*Bigel.*) *Torr.*
Cypripedium hirsutum *Mill.*
C. *reginae* *Walt.*
Gyrotheca capitata (*Walt.*) *Morong*
Gemmingia Chinensis (*L.*) *Kuntze*
Sisyrinchium graminoides *Bicknell*
Hypoxis hirsuta (*L.*) *Coville*
Polygonatum commutatum (*R. & S.*) *Dietr.*
Vagnera racemosa (*L.*) *Morong*
V. *stellata* (*L.*) *Morong*
V. *trifolia* (*L.*) *Morong*
Unifolium Canadense (*Desf.*) *Greene*
Clintonia umbellulata (*Mx.*) *Torr.*
Uvularia sessilifolia *L.*
Trillium undulatum *Willd.*
Chamaelirium luteum (*L.*) *Gray*
Chrosperma muscaetoxicum (*Walt.*) *Kuntze*
Heteranthera dubia (*Jacq.*) *MacM.*
Xyris montana *H. Ries*
Juncus Balticus *Willd.*
J. *Richardsonianus* *Schult.*
J. *Torreyi* *Coville*
J. *Canadensis* *J. Gray*
J. *brachycephalus* (*Engelm.*) *Buch.*
J. *Canadensis brevicaudatus* *Engelm.*
Juncoides pilosum (*L.*) *Kuntze*
J. *parviflorum* (*Ehrh.*) *Coville*
J. *campestre* (*L.*) *Kuntze*
Sparganium androcladum *Engelm.*

S. *androcladum fluctuans* *Morong*
Peltandra Virginica (*L.*) *Kunth*
Spathyema foetida (*L.*) *Raf.*
Alisma Plantago-aquatica *L.*
Sagittaria latifolia *Willd.*
S. *rigida* *Pursh*
S. *subulata* (*L.*) *Buch.*
Potamogeton Nuttallii *C. & S.*
P. *diversifolius* *Raf.*
P. *alpinus* *Balbis*

Manual

- Potamogeton fluitans Roth
P. perfoliatus var. lanceolatus
 Robbins
P. pauciflorus Pursh
P. pauciflorus var. Niagarensis
 (*Tuckerm.*) Morong
P. mucronatus Schrad.
P. Tuckermani Robbins
Naia Indica var. gracillima A. Br.
Cyperus aristatus Rottb.
C. Torreyi Britton
Dulichium spathaceum Pers.
Eleocharis quadrangulata R. Br.
E. compressa Sulliv.
E. pygmaea Torr.
Fimbristylis spadicæa var. castanea Gray
F. capillaris Gray
Scirpus pungens Vahl.
S. maritimus var. macrostachyos Mx.
S. sylvaticus var. digynus Boeckl.
Eriophorum lineatum B. & H.
E. cyperinum L.
E. cyperinum var. laxum Gray

Fuirena squarrosa var. pumila Torr.
Hemicarpha subsquarrosa Nees
Rhynchospora cephalantha Gray
R. macrostachya Torr.

Carex subulata Mx.
C. Michauxiana Boeckl.
C. Grayii Carey
C. lupulina var. polystachya S. & T.
C. retrorsa var. Hartii Gray
C. lurida var. gracilis Bailey
C. Pseudo-Cyperus var. Americana
 Hochst.
C. striata var. brevis Bailey
C. filiformis var. latifolia Boeckl.
C. trichocarpa var. aristata Bailey
C. atrata var. ovata Boott
C. vulgaris var. hyperborea Boott
C. stricta var. decora Bailey.
C. crinita Lam. (*in part*)
C. virescens var. costata Dew.
C. triceps var. hirsuta Bailey

Illustrated flora

- Potamogeton lonchites Tuckerm.
P. perfoliatus Richardsonii
 Bennett
P. foliosus Raf.
P. foliosus var. Niagarensis Gray

P. Friesii Rup.
P. confervoides Reichb.
Naia gracillima (A. Br.) Morong
Cyperus inflexus Muhl.
C. cylindricus (Ell.) Britton
Dulichium arundinaceum (L.) Britton
Eleocharis mutata (L.) R. & S.
E. acuminata (Muhl.) Nees
Scirpus nanus Spreng.
Fimbristylis castanea (Mx.) Vahl.
Stenophyllus capillaris (L.) Britton
Scirpus Americanus Pers.
S. robustus Pursh
S. microcarpus Presl.
S. lineatus Mx.
S. cyperinus (L.) Kunth
S. cyperinus Eriophorum (Mx.)
 Britton
Fuirena squarrosa Mx.
Hemicarpha micrantha (Vahl.) Britton
Rhynchospora axillaris (Lam.) Britton
R. corniculata macrostachya
 (*Torr.*) Britton
Carex Collinsii Nutt.
C. abacta Bailey
C. Asa-Grayi Bailey
C. lupuliformis Sartwell
C. Hartii Dew.
C. Baileyi Britton
C. comosa Boott

C. Walteriana Bailey
C. lanuginosa Mx.
C. aristata R. Br.
C. atriformis Britton
C. Bigelovii Torr.
C. Haydeni Dew.
C. gynandra Schw.
C. costellata Britton
C. triceps Mx.

Manual

- Carex debilis* var. *Rudgei* Bailey
C. debilis var. *strictior* Bailey
C. venusta var. *minor* Boeckl.
C. granularis var. *Haleana* Porter
C. flava var. *viridula* Bailey
C. laxiflora var. *striatula* Carey
C. laxiflora var. *latifolia* Boott
C. laxiflora var. *styloflexa* Boott
C. Saltuensis Bailey
C. eburnea Boott
C. communis Bailey
C. communis var. *Wheeleri* Bailey
C. Backii Boott
C. polytrichoides Muhl.
C. teretiuscula var. *ramosa* Boott.
C. rosea var. *retroflexa* Torr.
C. gynocrates Wormsk.
C. echinata var. *cephalantha* Bailey
C. echinata var. *microstachys* Boeckl.
C. echinata var. *angustata* Bailey
C. canescens var. *alpicola* Wahl.
C. canescens var. *vulgaris* Bailey
C. tribuloides var. *reducta* Bailey

C. tribuloides var. *cristata* Bailey
C. scoparia var. *minor* Boott
C. straminea var. *brevior* Dew.
C. straminea var. *aperta* Boott.
C. straminea var. *invisa* W. Boott
C. straminea var. *alata* Bailey
C. straminea var. *cumulata* Bailey
C. straminea var. *foenea* Torr.
Spartina juncea Willd.
S. stricta var. *glabra* Gray
Panicum filiforme L.
P. glabrum Gaudin
P. sanguinale L.
P. agrostoides Muhl.
P. latifolium L.
P. scoparium Lam.
P. Crus-galli var. *hispidum* Torr.
Setaria verticillata Bv.
S. glauca Bv.
S. viridis Bv.
S. Italica Kunth

Illustrated flora

- Carex tenuis* Rudge
C. tenuis erectior Britton
C. oblita Steud.
C. granularis Shriveri Britton
C. viridula Mx.
C. laxiflora blanda (Dew.) Boott
C. Albursina Sheldon
C. styloflexa Buckley
C. altocaulis (Dew.) Britton
C. setifolia (Dew.) Britton
C. pedicellata (Dew.) Britton
C. pedicellata Wheeleri (Bailey) Britton
C. durifolia Bailey
C. leptalea Wahl.
C. teretiuscula prairea (Dew.) Britton
C. retroflexa Muhl.
C. Redowskyana C. A. Meyer
C. sterilis cephalantha Bailey
C. sterilis Willd.
C. sterilis Willd.
C. brunnescens (Pers.) Poir.
C. brunnescens gracilior Britton
C. tribuloides moniliformis (Tuckerm.) Britton

Carex cristatella Britton
C. scoparia Schk. (in part)
C. festucea Willd.
C. tenera Dew.
C. tenera invisus (W. Boott) Britton
C. alata Torr.
C. albolutescens Schw. (in part)
C. albolutescens Schw. (in part)
Spartina patens (Ait.) Muhl.
S. stricta maritima (Walt.) Scrib.
Syntherisma filiformis (L.) Nash
S. linearis (Krock) Nash
S. sanguinalis (L.) Nash

Panicum agrostidiforme Lam.
P. Porterianum Nash
P. Scribnerianum Nash
P. Walteri Pursh

Ixophorus verticillatus (L.) Nash
I. glaucus (L.) Nash
I. viridis (L.) Nash
I. Italicus (L.) Nash

Manual

Leersia Virginica Willd.
L. oryzoides Sw.
Andropogon macrourus Mx.
Chrysopogon nutans Benth.
Hierochloe borealis R. & S.
H. alpina R. & S.
Stipa Richardsonii Lk.
Oryzopsis Canadensis Torr.
Muhlenbergia glomerata Trin.
M. Willdenovii Trin.
Brachyelytrum aristatum Bv.
Alopecurus geniculatus var. *aristulatus Torr.*
Agrostis alba var. *vulgaris Thurb.*
A. scabra Willd.
A. canina L.
Cinna pendula Trin.
Calamagrostis Nuttalliana Steud.
C. Pickeringii Gray
Ammophila arundinacea Host.
Arrhenatherum avenaceum Bv.
Trisetum palustre Torr.
T. subspicatum var. *molle Gray*
Cynodon Dactylon Pers.
Bouteloua racemosa Lag.
Triodia cuprea Jacq.
T. purpurea Hack.
Phragmites communis Trin.
Eatonia Dudleyi Vasey
Eragrostis reptans Nees.
Uniola gracilis Mx.
Distichlis maritima Raf.
Poa serotina Ehrh.
Glyceria Canadensis Trin.
G. obtusa Trin.
G. elongata Trin.
G. nervata Trin.
G. pallida Trin.
G. grandis Wats.
G. fluitans R. Br.
G. acutiflora Torr.
Festuca tenella Willd.
F. elatior var. *pratensis Gray*
Bromus ciliatus var. *purgans Gray*
B. mollis L.

Illustrated flora

Homalocenchrus Virginicus (Willd.) Britton
H. oryzoides (L.) Poll.
Andropogon glomeratus (Walt.) B. S. P.
Chrysopogon avenaceus (Mx.) Benth.
Savastana odorata (L.) Scribn.
S. alpina (Sw.) Scribn.
Stipa Macounii Scribn.
Oryzopsis juncea (Mx.) B. S. P.
Muhlenbergia racemosa (Mx.) B. S. P.
M. tenuiflora (Willd.) B. S. P.
Brachyelytrum erectum (Schreb.) Bv.
Alopecurus geniculatus L. (in part)
Agrostis alba L. (in part)
A. hyemalis (Walt.) B. S. P.
A. rubra L. (in part)
Cinna latifolia (Trev.) Griseb.
Calamagrostis cinnoides (Muhl.) Scribn.
C. breviseta (Gray) Scribn.
Ammophila arenaria (L.) Lk.
Arrhenatherum elatius (L.) Bv.
Trisetum Pennsylvanicum (L.) Bv.
T. subspicatum (L.) Bv.
Capriola Dactylon (L.) Kuntze
Bouteloua curtipendula (Mx.) Torr.
Sieglingia seslerioides (Mx.) Scribn.
S. purpurea (Walt.) Kuntze
Phragmites Phragmites (L.) Karst.
Eatonia nitida (Spreng.) Nash
Eragrostis hypnoides (Lam.) B. S. P.
Uniola laxa (L.) B. S. P.
Distichlis spicata (L.) Greene
Poa flava L.
Panicularia Canadensis (Mx.) Kuntze
P. obtusa (Muhl.) Kuntze
P. elongata (Torr.) Kuntze
P. nervata (Willd.) Kuntze
P. pallida (Torr.) Kuntze
P. Americana (Torr.) MacM.
P. fluitans (L.) Kuntze
P. acutiflora (Torr.) Kuntze
Festuca octoflora Walt.
F. elatior L. (in part)
Bromus ciliatus L. (in part)
B. hordeaceus L.

Manual

Agropyrum repens Bv.
Elymus striatus var. *villosus* Gray
Asprella Hystrix Willd.
Equisetum limosum L.
Cheilanthes vestita Sw.
Pellaea gracilis Hook.
Woodwardia angustifolia Sm.
Asplenium ebeneum Ait.
 A. *thelypteroides* Mx.
Scolopendrium vulgare Sm.
Phegopteris polypodioides Fee
Aspidium Thelypteris Sw.
 A. *Noveboracense* Sw.
 A. *fragrans* Sw.
 A. *spinulosum* Sw.
 A. *spin.* var. *intermedium* Eaton

 A. *spin.* var. *dilatatum* Hook.
 A. *Boottii* Tuckerm.
 A. *cristatum* Sw.
 A. *crist.* var. *Clintonianum* Eaton

 A. *Goldianum* Hook.
 A. *marginale* Sw.
 A. *acrostichoides* Sw.
 A. *aculeatum* var. *Braunii* Koch
Woodsia hyperborea R. Br.
Dicksonia pilosiuscula Willd.
Lycopodium obscurum var. *dendroideum*
 Gray

Illustrated flora

Agropyron repens (L.) Bv.
Elymus striatus Willd. (*in part*)
Hystrix Hystrix (L.) Millsp.
Equisetum fluviatile L.
Cheilanthes lanosa (Mx.) Watt
Pellaea Stelleri (Gmel.) Watt
Woodwardia areolata (L.) Moore
Asplenium platyneuron (L.) Oakes
 A. *acrostichoides* Sw.
Scolopendrium Scolopendrium (L.) Karst.
Phegopteris Phegopteris (L.) Underw.
Dryopteris Thelypteris (L.) Gray
 D. *Noveboracensis* (L.) Gray
 D. *fragrans* (L.) Schott
 D. *spinulosa* (Retz) Kuntze
 D. *spin.* *intermedia* (Muhl.)
 Underw.
 D. *spin.* *dilatata* (Hoffm.) Underw.
 D. *Boottii* (Tuckerm.) Underw.
 D. *cristata* (L.) Gray
 D. *crist.* *Clintoniana* (Eaton)
 Underw.
 D. *Goldieana* (Hook.) Gray
 D. *marginalis* (L.) Gray
 D. *acrostichoides* (Mx.) Kuntze
 D. *Braunii* (Spenner) Underw.
Woodsia alpina (Bolton) Gray
Dicksonia punctilobula (Mx.) Gray
Lycopodium obscurum L. (*in part*)

D

SPECIES NOT BEFORE REPORTED

***Sisymbrium altissimum* L.**

In a newly seeded meadow. Vaughns, Washington co. June. S. H. Burnham. This is an introduced plant whose seeds were probably mixed with the grass or clover seed used. It has been introduced into some of the western states where it is becoming a very troublesome weed. It is 2 to 4 feet tall when well grown. It branches freely and when old and dry it is liable to be broken from its base and rolled over the ground like a tumble weed, the wind driving it about and scattering its seeds wherever it goes.

Diplotaxis tenuifolia (L.) DC.

Erie basin, Brooklyn. August. G. D. Hulst. This is also an introduced plant found chiefly in waste places about cities.

Viola ovata Nutt.

Dry ground. Saugerties, Ulster co. and Sand Lake, Rensselaer co. May. This violet has sometimes been considered a variety of *V. sagittata*, but its specific validity is recognized in *Illustrated flora*.

Lespedeza frutescens (L.) Britton

Wading River, Suffolk co., Bethlehem, Albany co. and Dresden Station, Washington co. August.

L. violacea sessilifolia and *L. Stuevei intermedia* are synonyms formerly applied to this species of bush clover.

Lespedeza Nuttallii Darl.

Dry soil. Poestenkill, Rensselaer co. and on Long Island. August and September.

Cytisus scoparius (L.) Lk.

This plant, known as broom or Scotch broom, has been introduced and is occasionally found in waste places. Richmond Hill, Queens co. G. D. Hulst.

Onagra cruciata (Nutt.) Small

Roadsides. North Elba, Essex co. August. In the *Manual* this plant is considered a variety of the common evening primrose and stands as *Oenothera biennis* var. *cruciata* T. & G. It is easily distinguished from *OE. biennis* by its much smaller petals which are narrow and almost pointed.

Galium Claytoni Mx.

Damp or wet places. Fulton Chain, Herkimer co. July. Related to *G. trifidum* but distinguished from it by having five or six stem leaves at a node.

Solidago erecta Pursh

Sandy soil. Baiting Hollow, Suffolk co. September. This goldenrod has been reported under the name *Solidago speciosa* var. *angustata* T. & G., but it is now classed as a distinct species.

***Solidago hispida* Muhl.**

Dry sandy soil. Karner, Albany co. August and September.

This is *Solidago bicolor* var. *concolor* T. & G. in the *Manual*. It is a pretty goldenrod, similar in its general characters to *S. bicolor*, but easily distinguished from it by the yellow rays of the flower heads. In the smaller and less vigorous plants the panicle is long, narrow and spike-like, in the larger and more vigorous it is comparatively shorter and broader, its branches being longer.

***Aster hirsuticaulis* Lindl.**

Woods and roadsides. Charlotteville swamp, Schoharie co.; Wells, Hamilton co.; Northville, Fulton co. and Corning, Steuben co. August and September. This species has generally been regarded as a variety of *A. miser* Nutt. or its equivalent *A. diffusus* Ait., but in *Illustrated flora* it has been restored to specific rank.

***Antennaria neglecta* Greene**

Pastures and roadsides. Wynantskill and Sand Lake, Rensselaer co.; Menands, Albany co. and New Paltz, Ulster co. May and June. This species may be distinguished from the more common *A. plantaginifolia*, with which it has till recently been confused, by its smaller and single veined basal leaves and by its racemed heads of flowers.

***Nabalus trifoliatu*s Cass.**

Woods. Menands and North Elba. August and September.

***Broussonetia papyrifera* (L.) Vent.**

Roadsides. Woodlawn, Long Island. May. G. D. Hulst. Introduced and occasionally escapes from cultivation.

***Salsola Tragus* L.**

Near Rochester and also along the railroad at Livonia salt mine about 30 miles south of Rochester. October. M. S. Baxter.

The Russian thistle has probably been brought to these stations from the west. A few years ago it was introduced into North Dakota, and from this as a starting point it has been spreading in various directions. It has already acquired the reputation of being a most pernicious weed, and it should meet with prompt destruction in every new locality in which it may appear. It is an annual plant and special care should be

taken to destroy it before it has had time to mature a crop of seeds. If this is thoroughly done it should not be difficult to prevent its becoming established in new localities. It is often considered a variety of the sea-coast plant *Salsola Kali*, and mentioned under the name *Salsola Kali* var. *Tragus*.

***Convallaria majalis* L.**

The lily of the valley grows wild farther south, but is frequently cultivated in our state because of its delightful fragrance and early flowers. It sometimes escapes from cultivation here and grows spontaneously. Specimens were found growing in a grove on the margin of a meadow at Menands. May.

***Juncoides spicatum* (L.) Kuntze**

Top of Wallace mountain, Essex co. June. At present this is the only known station of this northern species in our state. It is found in considerable abundance along the brow of the precipice that forms the western wall of Indian pass. Why it should be here and not on other prominent peaks of the Adirondack mountains is not easily answered. Its spike-like panicle bears some resemblance to that of *Carex teretiuscula*.

***Panicum Atlanticum* Nash**

Pastures and dry open places. Fulton Chain. July. Dresden Station. August. Our plant is a small or dwarf form 4 to 8 inches high. Its panicles are few-flowered, and its spikelets are scarcely one line long. It grows in patches and both leaves and culms bear long white spreading hairs.

***Alopecurus agrestis* L.**

Menands. June. This is an introduced grass occasionally found in waste places.

***Panicularia borealis* Nash**

Shallow water along streams and margins of lakes. Lansingburg. E. C. Howe. Caroga, Fulton co. and Cascade lake, Essex co. It appears like a small or slender form of *Panicularia fluitans*, and like that species it sometimes has floating leaves.

***Botrychium dissectum* Spreng.**

Old fields and pastures. Alcove, Albany co. North Elba. August and September. This is *Botrychium ternatum* var. *dissectum* in the *Manual* and *Botrychium lunarioides* var. *dissectum* in *New York state flora*.

Sphagnum Russowii *Warnst.*

Wet rocks and slides of the mountains. Mt Whiteface. September. Mrs E. G. Britton. *S. Russowii poecilum* Russ. occurs in a marsh near Scotts ponds. June.

Sphagnum quinquefarium *Warnst.*

Wet cliffs. Indian pass and a rocky bluff near Wood farm. June.

Sphagnum medium *Limpr.*

Cold marshes, wet rocks and slides of mountains. Mt Whiteface. September. Mrs Britton. Sand Lake and Mt Marcy. July and August. This peat moss closely resembles *Sphagnum cymbifolium*.

Splachnum rubrum *L.*

A few specimens of this singular and very rare moss were found growing among peat mosses near Scotts ponds. June. It has been reported from the Rocky mountains and from Maine.

Hypnum laxepatulum *L. & J.*

Forming thin mats on rocks. Lake Placid. September. Mrs Britton. The specimens are sterile.

Jungermannia Kunzeana *Huben.*

Rocks. Indian pass. June and August.

Jungermannia gracilis *Schleich.*

Rocks. Mt Marcy. August.

Scapania apiculata *Spruce*

Decaying prostrate trunks of balsam fir. North Elba. August.

Umbilicaria erosa (*Web.*) *Hoffm.*

Rocks. Thirsty pond, near Big Moose station. July. Summit of Mt Marcy. August.

Peltigera rufescens (*Neck.*) *Hoffm.*

Rocks. North Elba. June.

Physcia adglutinata (*Floerk.*) *Nyl.*

Bark of beech trees. North Elba. June.

***Physcia setosa* (Ach.) Nyl.**

Rocks. Cascade lake. August.

***Placodium vitellinum* (Ehrh.) N. & H.**

Rocks. North Elba. June.

***Biatora Laureri* Hepp**

Bark of beech trees. North Elba. June.

***Biatora Schweinitzii* Fr.**

Decorticated wood of balsam fir. Near Marcy camp. August.

***Biatora granulosa* (Ehrh.) Poetsch**

Mucky and heathy soil, dead mosses, etc. Mt Marcy and North Elba. August.

***Cladonia sobolescens* Nyl.**

Thin soil covering rocks. Dresden Station. August.

***Cladonia decorticata* Floerk.**

Ground. Mt Marcy. August.

***Lepiota solidipes* n. sp.**

Pileus fleshy, very convex or subhemispheric, becoming broadly convex or nearly plane, white, sometimes with a slight pinkish tint, flesh white, taste and odor farinaceous; lamellae thin, close, free, white; stem equal or somewhat bulbous, silky-fibrillose, solid, white or whitish, the thin annulus slightly floccose externally, subevanescent; spores globose or subglobose, .00016 to .0002 inch broad.

Pileus 2 to 4 in. broad; stem 2 to 4 in. long, 4 to 6 lines thick.

Damp or swampy ground. Woodlawn park, Saratoga. October. F. G. Howland.

The solid stem and small globose spores specially distinguish this species. By the former it may be separated from *L. naucina*, and by both from *L. naucinoides*.

***Tricholoma portentosum* Fr.**

Woods. Sand Lake. September. Our specimens have the pileus yellow on the margin as in the form figured by Saunders and Smith. We have not yet found the typical form, which has the pileus uniformly sooty brown. Our plant seems worthy of varietal distinction and we name it variety *centrale*.

Tricholoma acre *Pk.*

Thin woods. Karner, Albany co. October. This mushroom has the hot peppery taste which belongs to many species of *Lactarius* and *Russula*.

Clitocybe eccentrica *Pk.*

Decaying wood. Meadowdale, Albany co. and North Elba. August.

In this species the stem is frequently eccentric. It is usually adorned with a coarse strigose villosity at the base and long branching strands of white mycelium permeate the soft decaying wood.

Marasmius acerinus *n. sp.*

Pileus thin, submembranaceous, convex, umbilicate, subglabrous, sulcate-striate, pale bay red; lamellae broad, distant, adnate, tough, whitish or yellowish white; stem short, often curved, inserted, hollow, clothed with a minute short whitish pubescence, colored like the pileus or sometimes a little darker; spores subelliptic, .0003 in. long, .00016 broad, usually with an oblique apiculus at one end.

Pileus 3 to 6 lines broad; stem 6 to 9 lines long, scarcely 1 line thick.

Dead bark of mountain maple, *Acer spicatum*. Near Adirondack lodge. August.

Closely allied to *M. viticola* B. & C., but it is a smaller plant with a paler and scarcely glabrous pileus and with comparatively broader lamellae. To the naked eye the stem appears to be slightly pruinose, but under a lens it is seen to be thinly clothed with minute short whitish hairs. These also appear to some extent on the pileus.

Clitopilus socialis *n. sp.*

Pileus thin, convex, deeply umbilicate, grayish brown; lamellae thin, moderately close, decurrent, colored like the pileus when young, grayish incarnate when mature; stem equal, stuffed or hollow, colored like the pileus or a little paler; spores irregular, uninucleate, generally a little longer than broad, .0003 to .0004 in. long, .00024 to .0003 broad.

Pileus 6 to 10 lines broad; stem 6 to 12 lines long, 1 to 2 lines thick.

Closely gregarious. Under pine and hemlock trees. Delmar. September.

This species is well marked by its deeply umbilicate pileus. It is apparently related to *C. undatus*, but the pileus is not at all undulate, its color and the shape of its spores are different and its closely gregarious mode of growth will also distinguish it. The plants are sometimes

crowded or almost cespitose. In such cases the surface of the ground beneath is often whitened by a profuse development of the mycelium.

***Hebeloma palustre* n. sp.**

Pileus fleshy but thin, broadly convex becoming nearly plane with age, sometimes wavy or irregular, glabrous, hygrophanous, grayish brown and slightly striatulate on the margin when moist, paler when dry, flesh whitish; lamellae close thin ventricose, adnexed, grayish white becoming cinnamon brown; stem rather long, equal or tapering upward, hollow, silky, white; spores subelliptic, uninucleate, .0004 to .0005 in. long, .00024 to .0003 broad.

Pileus 1 to 1.5 in. broad; stem 2 to 3 in. long, 2 to 4 lines thick. Mossy ground in swampy woods. Kasoag. October. The pileus is not viscid and there is no evidence of a veil.

***Crepidotus epibryus* Fr.**

Mosses, fallen twigs and leaves of coniferous trees. North Elba. August.

***Gomphidius furcatus* n. sp.**

Pileus fleshy, convex or nearly plane, rarely somewhat umbonate, glabrous, viscid, whitish, sometimes tinged with red, occasionally with blackish stains when old or becoming blackish where bruised, flesh white; lamellae thick, distant, decurrent, many of them forked, whitish, becoming sooty brown; stem longer than the diameter of the pileus, rather slender, curved or flexuous, firm, solid, whitish; spores oblong or subfusiform, .0006 to .0008 in. long, .00024 to .0003 broad.

Pileus 1 to 2 in. broad; stem 1.5 to 3 in. long, 1.5 to 3 lines thick.

Under or near tamarack trees in swamps. Kasoag. October.

The species is apparently related to *G. maculatus Cookei* Mass., from which it is separated by its more slender habit and forked lamellae. The pileus becomes reddish brown in drying.

***Psilocybe uda* Pers.**

In sphagnum marshes. Karner and Kasoag. September and October. Variable in color.

***Polyporus hispidellus* n. sp.**

Pileus fleshy, tough, dimidiate, pale cervine or grayish brown, clothed with short stiff erect hairs, flesh white; pores small, short, subrotund, white, the dissepiments thin, the edges uneven dentate or lacerate; stem

short, lateral, solid, often irregular, clothed like the pileus; spores fusiform, .0005 in. long, .00016 broad, usually containing a single large nucleus.

Pileus 2 to 3 in. broad; stem about 1 in. long, 4 to 6 lines thick.

Roots of trees or decaying wood buried in the ground. North Elba and Marcy trail. August.

Vermicularia punctans *Schw.*

Dead leaves of Indian grass, *Chrysopogon avenaceus*. Karner. October.

The spores in our specimens are subfusiform and slightly curved. They are supported on slender sporophores from one fourth to one half the length of the spores.

Uromyces caryophyllinus (*Schrank*) *Schroet.*

Living leaves of carnation pink. Gouverneur. November. Mrs E. C. Anthony.

Peridermium Engelmanni *Thum.*

Cones of spruce trees. Fulton Chain and North Elba. June and July. Apparently a rare species. Only a few cones on the tree were affected by it.

Gymnosporangium Nidus-avis *Thaxter*

Living branches of red cedar, *Juniperus Virginiana*. Staten Island. April. L. M. Underwood.

Peronospora australis *Spæg.*

Living leaves of star cucumber, *Sicyos angulatus*. Hoffman, Schenectady co. July.

Chlorosplenium aeruginascens (*Nyl.*) *Karst.*

Decaying wood of poplar, *Populus tremuloides*. Karner. October.

This species is closely related to *Chlorosplenium aeruginosum*, from which it may be separated by its smaller spores. Both plants discolor the wood on which they grow.

Tympanis laricina (*Fckl.*) *Sacc.*

Dead branches and bark of larch and balsam fir. North Elba. August and September.

E

REMARKS AND OBSERVATIONS

Glaucium Glaucium (L.) *Karst.*

Syracuse. June. Miss L. W. Roberts. The yellow horned poppy or sea poppy is an introduced plant found chiefly along or near the sea shore.

Floerkia proserpinacoides *Willd.*

The occurrence of the false mermaid about Tarrytown has been reported by J. H. Barnhart, and in Richmond county, by W. T. Davis.

Potentilla fruticosa L.

A single poor infertile starved bush of the shrubby cinquefoil was found on Wallface mountain. Its appearance did not give much promise that it would long continue to represent its species there.

Geum macrophyllum *Willd.*

The large leaved avens is a rare species in our state, but is quite plentiful in the eastern part of North Elba. It is abundant along the old road to Keene, about the head of Cascade lake and in low meadows between Freemans Home and Wood farm.

Amelanchier oligocarpa (Mx.) *Roem.*

This Juneberry ascends to the open summit of Mt Marcy. It also descends to the valleys and occurs by the roadside about a half mile southeast of North Elba post office.

Ribes prostratum L'Her.

The flowers of the fetid currant are variable in color. They are pale greenish with slight tints of red or pink on some plants, purplish red on others.

Viburnum alnifolium *Marsh.*

Several years ago the superintendent of the Adirondack survey reported to me the occurrence in the Adirondack region of a hobble bush bearing pink flowers. Finding no mention of such a variety in the botanies, and wishing if possible to procure specimens of it, the region where it had been seen was visited early in the season. A few plants were found in which the large exterior flowers of the cyme or cluster had a pinkish color, and occasionally some of the small interior flowers were similarly

colored. In every case the flowers seemed to be old or past their prime and some had fallen. There was no indication that any of them had just opened and the probability is that the pink or rosy hue was acquired by age. The tint was very delicate and was retained by none of the dried specimens though they were treated with great care.

Solidago macrophylla Pursh.

The large leaved goldenrod is one of the most common species in the more elevated parts of the Adirondack region. A small leaved variety of it occurs along the banks of the Ausable river on Wood farm. In it the leaves are mostly less than 3 inches long and less than 1 inch broad. The flower heads are also smaller than in the typical form, but they are sometimes more numerous.

Solidago Virgaurea Redfieldii Porter

Indian pass. August. It grows here on the moss covered surface of huge boulders.

Aster divaricatus cymulosus Burgess

Dry ground in thin woods. Dresden Station. August.

Aster macrophyllus velutinus Burgess

Banks of the Ausable river, North Elba. August.

Aster lateriflorus glomerellus (T. & G.) Burgess

Bethlehem, Albany co. and Sand Lake. September and October.

Aster lateriflorus thyrsoides (Gray) Sheldon

Northville. August.

Aster lateriflorus grandis Porter

Sand Lake. October.

Aster lateriflorus pendulus (Ait.) Burgess

Lake Mohonk. October.

Aster prenanthoides porrectifolius Porter

Shokan, Ulster co. October.

Aster acuminatus *Mx.*

A singular form of this very variable species was found on the trail between Adirondack lodge and Mt Marcy. Its station is about a half mile from the camp. The flower heads were destitute of rays and had a peculiar bristly appearance, which was apparently due to an excessive development of the scales and pappus and a suppression of the florets. In a patch of plants several feet across all the flower heads were of this character. The plants were otherwise well developed and apparently in a good healthy condition.

Hieracium aurantiacum *L.*

A striking example of the rapidity with which the orange hawkweed is capable of increasing and spreading was seen along the Chateaugay railroad. In June 1897 a few patches of this odious but showy weed were noticed along the railroad between Dannemora and Chazy lake stations. In June 1898 there was an almost continuous display of the brilliant blossoms of this weed between these two stations. The plant had also made its appearance in many places along the railroad between Chazy lake and Loon lake. In some places its rival pest, *Hieracium praealtum*, had also made its appearance and was displaying its yellow blossoms.

Hieracium Marianum *Willd.*

Woods. Menands. June.

Doellingeria umbellata (*Mill.*) *Nees*

A small form of this aster is plentiful along the banks of streams in North Elba. It is generally less than 2 feet high, has few heads of flowers and its leaves are disposed to arrange themselves in two rows, one on each side of the stem. This is specially the case when the plants grow on the edge of the bank and are overshadowed by shrubs or small trees, which cause the plants to reach out over the water in their effort to obtain more sunlight.

Circaea alpina *L.*

This plant sometimes produces oblong white tubers by which it is renewed. Specimens showing this character were collected at New Russia, Essex co. and communicated by Mrs L. A. Millington.

Pinus divaricata (*Ait.*) *Sudw.*

Banks of the Ausable river near Upper Jay, Essex co. This is a newly discovered station for the northern scrub pine, also called Labra-

dor pine and gray pine, and the most distant one from the shore of Lake Champlain. The others are at Wadhams Mills, Mt Discovery and about two miles south of Keeseville.

***Juniperus Virginiana* L.**

Young trees of the red cedar sometimes retain their acicular leaves till they have attained considerable size. Trees 3 or 4 feet high were observed near Upper Jay and also near Dresden Station, on which all the leaves were acicular.

***Juniperus nana* Willd.**

Three distinct forms of the low juniper occur about Dresden Station. Of these the common form is frequent. A second form has its branches much more erect and is only occasional. It is recognizable at a glance. Both these forms are frequently 3 or 4 feet high. The third form is smaller and has more slender leaves than the others. It is rare.

***Juncus militaris* Bigel.**

Specimens with the long filiform leaves of the rootstocks were obtained in Big Moose lake in July. The large emerged leaves and stems appear to afford food for deer.

***Eriophorum Virginicum* L.**

A very unusual form of the Virginian cotton grass was found near Big Moose station. In it the stems bore two clusters of spikelets, one terminal, as usual, the other smaller and lateral, 4 to 6 inches below the terminal one.

***Carex scirpoidea* Mx.**

This rare sedge whose range extends northward to Greenland occurs on Wallface mountain. It varies from 6 to 12 inches or more in height and its spike is rarely branched at the base.

***Danthonia compressa* Aust.**

This grass is abundant about Fulton Chain. It usually grows in thin woods or along lumber roads in woods, but here it was found growing freely in light sandy soil in open places where it is exposed to the full rays of the sun during the whole day. In such places it forms tufts and is apparently more stout and vigorous than in partly shaded places.

Scolopendrium Scolopendrium (*L.*) *Karst.*

The discovery of a new station for this rare fern has been published. It is in a ravine near Perryville, Madison co., and is not far from the Chittenango Falls locality. It is said that the original New York station, where it was found many years ago by Pursh, has been destroyed and the fern is no longer there. It is to be hoped that this new locality for it will long escape such a fate.

Sphagnum Pylaesii *Brid.*

On the summits of the high peaks of the Adirondack mountains this moss overspreads the wet surface of bare rocks, lying prostrate as if too weak to stand erect. It was found growing on wet bare earth on the marshy border of a small pond back of Wallface mountain. It was more erect in its mode of growth.

Dicranum flagellare *Hedw.*

A peculiar form of this species was found by Mrs Britton near Whiteface inn, North Elba. In it the stems are long and slender, the flagellae few and the leaves narrow and secund. The specimens are sterile.

Tricholoma portentosum centrale *n. var.*

Pileus pale yellow or greenish yellow, sooty brown in the center; lamellae transversely marked or irregularly striated with paler lines. Otherwise like the type. Sand Lake. September.

Galera lateritia albicolor *n. var.*

Pileus white, finely striate. Menands. June.

Galera Hypnorum umbonata *n. var.*

Pileus campanulate, 6 to 8 lines broad, strongly umbonate. In a sphagnous marsh. Kasoag. October.

Cortinarius corrugatus subsquamosus *n. var.*

Pileus marked with appressed spot-like scales. Sand Lake. September. The spots are darker than the general color of the pileus and give this variety a very distinct appearance.

Psilocybe caerulipes *Pk.*

This species was discovered in 1884 near Ballston lake. It was found a second time the past season near Round lake. It is evidently a rare species.

Lactarius distans *Pk.*

This species was described and published in 23d report, p. 117, and its resemblance to *Lactarius hygrophoroides* B. & C. was recognized. In 38th report, p. 129 it was regarded as a form of that species and united with it. In taking this view of the case it is necessary to suppose that the very brief description of *L. hygrophoroides* was founded on unusually small specimens and was also somewhat faulty. I have never been able to find a single specimen of our species with a pulverulent pileus, nor can the lamellae be correctly described as decurrent, though they are sometimes subdecurrent. In *Sylloge* the two plants are kept distinct and this seems to be the best course to pursue till we can be more certain of the unity of the species.

Another species has been described under the name *Lactarius Calceolus* Berk. This also has many points of agreement with our plant, but differs in others. Its pileus is described as smooth and the color of it and the stem is said to be brown buff. Its lamellae are very few, not exceeding 20, and are forked near the edge. These characters are not shown by any specimens of our plant that have come under my notice.

Boletus Ravenelii *B. & C.*

The flesh of this beautiful species has a very acrid taste. It is as sharp as that of *Lactarius rufus*.

Hydnum Caput-ursi brevispineum *n. var.*

Aculei very short, usually 2 to 4 lines long, some of them minutely and fimbriately divided.

Standing trunk of a maple tree. Auburn. September. G. H. Nye.

The bear's head hydnum, is an extremely variable species and he who expects to find every species of mushroom adhering strictly to one particular shape, size and outline will be disappointed in this one. Its solid fleshy body may vary in length from 2 inches to 8 inches. The teeth or spines may be 2 lines or 2 inches long, stout or slender simple or branched, and the color which is usually white may be tinged with yellow or pink. The essential character of the species is a solid fleshy body with short, projecting branches bearing numerous simple or branched spines of unequal length.

F

PLANTS OF THE SUMMIT OF MT MARCY

Mt Marcy is the highest mountain in the state, with an altitude of 5344 ft above the sea, and is in the center of a very rugged, mountainous region, where high peaks separated by deep and narrow valleys rise on all sides. From its summit an observer may look on mountain scenery in every direction, and obtain views unsurpassed in beauty and grandeur. A visit to this lofty station necessitates a tiresome walk of six or seven miles through the woods over a rough trail and up some steep acclivities. But the attractions of the place, the magnificent views it affords and the richness of its flora bring many visitors, and few return without feeling well rewarded for the labor and expense incurred. The open summit, the part above the timber line, may be compared to an ellipse whose long axis lies in a northeast and southwest direction, but whose circumference is quite irregular. It may be called treeless, but a few species of trees are found within its limits. They do not however attain the size nor even the shape of trees of the same species below the timber line. They have a mere shrub-like development, with small leaves, wide-spreading crooked branches and a starved and straggling appearance. The timber line is well marked in some places by abrupt precipices, at the base of which the forest suddenly terminates. In other places the declivity is less abrupt and no definite line marks the tree limit. The trees gradually become smaller as the altitude increases, till they are mere shrubs in size or cease entirely. On the eastern slope there are radiating ridges with intervening depressions in which the small balsam firs ascend almost to the summit. As might be expected, the northern and western slopes present the greatest expanse of open surface. But even here are limited patches of small balsam firs in depressions or where some sheltering ledge gives partial protection from fierce winds.

Two small, marshy areas, worthy of special notice, form a part of the open summit. One is a decided depression in the northeast slope. A rugged cliff lies on one side of it and a rocky knob on the other. Possibly a trap dike may have afforded the necessary conditions for its existence. The trail from the top of the mountain to Adirondack lodge passes through it. Its surface is level, soft and marshy. Several species of marsh plants grow here, including three or four sedges not found elsewhere on the open summit. The small cranberry and peat mosses are here, and here the thirsty tourist can find water to drink.

The other is on the eastern slope and is much nearer the top of the mountain. It is at the head of a ravine or depression between two ridges that extend far down the slope. Its water supply is not abundant. Indeed it is scarcely visible and the surface is not level, so that the presence of marshy ground and marsh plants here may at first seem mysterious. The plants that grow here are mostly small and unthrifty and the diminutive balsam firs that grow on three sides of this space avoid its marshy area completely. The water necessary to maintain the character of the place is probably supplied in part by the gradual melting of the snow and ice that accumulate during the winter under the massive boulders and in the crevices of the rocks above. This water would be very cold and would maintain a low temperature in the soil through which it percolates. The location of the place is such that the direct rays of the sun can not reach it during a considerable part of the afternoon. Only plants capable of enduring cold and shade could thrive in such a place. During the winter a vast amount of snow accumulates, for the prevailing north and west winds blow it from the higher ground and pile it in this sheltered nook till it is many feet deep. It remains here in the warm season longer than in any other place on the summit. In 1886, the summit of the mountain was visited June 10. A large part of this sloping marsh was yet covered by a huge snow bank, though the rest of the summit was bare. It is easy to see how the winter is prolonged and the summer shortened in such a spot as this, and such a modification of the growing season must have some influence on the plants of the place. Two sedges, a sundew and a rush are found here that I have not seen growing elsewhere on the mountain. Every botanist who visits the summit of Mt Marcy should examine these two marshy spots. They are cold botanical gardens of natural formation, full of interest and suggestive of thought.

This mountain summit affords a striking object lesson in the formation of soil and the development of vegetation. It is not difficult to imagine that there was a time when the summit of Mt Marcy was a bare rock with neither soil nor plant visible. The thin, heathy soil that now covers much of the surface gives no evidence of having been brought there from other sources, but on the other hand it does suggest the thought that it has been made on the spot, not by the action of sudden or violent agencies so much as by the action of slow and quiet influences continued for ages. "O! these mosses and lichens have made this soil." This was the first utterance of an esteemed and observant

friend when for the first time his eyes rested on the open summit of the mountain as he stood upon the brow of the precipice which he had just climbed and which till that moment had kept the suggestive sight from his view. It does not need an extended examination to confirm the truth of the assertion so confidently made at first sight. Mosses and lichens at the present time are showing that they can grow on the bare surface of rocks. The boulders of the summit are variegated by the different colors of the lichens growing on their hard and almost naked surfaces. If we attempt to chip off a specimen we sometimes find the rock beneath the lichen more soft and scaly than elsewhere. Its presence seems in some way to have aided in the softening and disintegration of the rock. If we pluck a tuft of moss from the rock we find the lower part of the interspaces of the stems and leaves filled with dirt and sand, apparently composed of particles of disintegrated rock mingled with the decomposed remains of stems and leaves of mosses. This process of growth and decay of organic matter and the disintegration of inorganic matter aided by the action of the elements would in due time furnish sufficient soil to support the growth of small herbaceous plants. These in turn by their growth and decay would aid in increasing the quantity of soil covering the rocks till there would be sufficient to permit the growth of larger herbs and finally of shrubs and small trees. In this condition we now find the summit of Mt Marcy. The soil in most places is but a few inches deep and its appearance and texture indicate a large percentage of humus. This and other conditions due to the altitude of the place must necessarily have some influence in determining the character of the plants that grow there.

Only plants of the most hardy character could endure a climate in which frost occurs in every month of the year. No tree could grow many feet high without being overturned or broken down when exposed to such fierce winds as sweep over this mountain. A few plants grow here which grow no where else in the state except on the top of other mountains high enough to have open summits. Some grow here which grow also at lower altitudes, but they are so changed by their unfavorable location that they scarcely appear to belong to the same species. The balsam fir of the valleys is a most beautiful and symmetrical tree, but here it is without symmetry, a low shrub-like growth with long crooked branches, often covered with lichens and closely interlocked with those of neighboring trees. The branches are sometimes nearly as

long as the trunk. The trees are from 1 to 6 feet high. In the depressions they are too tall to be disregarded in our rambles and their branches are too low and too closely interlocked to admit an easy passage through the almost impenetrable thickets they form. The little scrubby spruces scarcely venture to grow in an upright position. They spread over the ground in a half prostrate way as if in imitation of the low juniper or the ground hemlock. The season for plant growth and activity is so short that the annual elongation of their stems and branches is scarcely more than 1 or 2 inches.

The number of plants growing here that in lower stations are found in marshes and wet places is remarkable. Several species of peat moss, most of the sedges, blue joint grass, the cranberry, the swamp laurel, leather leaf and Labrador tea are examples of this kind. Showers are frequent, the top of the mountain is often capped by clouds, the low temperature retards evaporation, the mosses hold back the water and the abundant humus in the soil is also retentive of moisture. All these unite in producing conditions favorable to the growth of marsh plants.

The number of annual plants is very small. Most of the flowering plants are either perennial herbs or plants with woody stems. The mosses and lichens are mostly perennial. Some of the conditions incident to the locality must be unfavorable to the growth and persistency of annual plants.

The character of the flora is subject to change. Some species disappear, others appear. About 60 years ago the moss plant, *Cassiope hypnoides*, was growing here in a sheltered depression, but in none of my visits to this place have I been able to find it. In my early visits the tall white bog orchis was here, but it has not been seen in any of my recent visits. It is very probable that both these plants are no longer inhabitants of this station. In my last visit a small patch of timothy grass, *Phleum pratense*, was found growing on the very top of the mountain near the signal station. It must be a recent introduction, for it could not have escaped notice in such a conspicuous place if it had been there at the time of my previous visits. Some plants are apparently more abundant now than at my earlier visits. Then the scrub birch was seen in small quantity and appeared to be in danger of extinction. Now it is quite plentiful and apparently spreading. It is abundant about the borders of the sloping marsh mentioned on a preceding page.

Many of the species of flowering plants growing here are such as blossom early in the season. The sweet white violet, oblong fruited

Juneberry, fetid currant, mountain fly honeysuckle, bluets, leather leaf swamp laurel, Lapland rosebay, Lapland diapensia, scrub birch, green alder, bearberry willow, tufted club rush and alpine holy grass are examples of this kind. All these may be found in flower in June and some of them early in the month, soon after the snow has disappeared. On June 10, a few feet below the eastern margin of the snow bank still remaining at the upper end of the sloping marsh, the little bluets, *Houstonia coerulea*, had commenced its growth. A few feet away its flower buds had developed while the plants growing but a little farther down the slope were in blossom. These plants had been uncovered first and before the snow had melted and exposed the plants at the upper end of the marsh, these more fortunate ones had developed and unfolded their blossoms. By flowering early, more time remains in which to mature and ripen their seeds. The shortness of the growing season is perhaps a partial explanation of the presence of but few annual plants. Many of them require a longer season for their growth and the perfection of their seeds than is afforded here.

Some plants that might be expected to occur on the open summit fail to appear there. Some ascend almost to the tree limit but do not pass it. Dalibarda, Canada blueberry, sheep laurel, mountain holly, arbor vitae and cedar-like club moss are examples of this kind. Some of these do appear above the tree limit on mountains of less altitude but I have not seen them on the open summit of Mt Marcy.

The higher the mountain in a given region, the greater the extent of its open summit is likely to be, and the greater the extent of its open summit the larger the number of species of plants inhabiting it, unless it should reach above the limit of vegetation. As Mt Marcy surpasses its neighbors in altitude, so it surpasses them in the number of species of plants inhabiting its open summit. The number of species of flowering or seed bearing plants credited to it in the subjoined list is 75. A census of the species growing on the open summit of Mt McIntyre was taken a year ago and the number of species was found to be 48. Mt McIntyre is almost as high as Mt Marcy, standing second in rank. The number of species found on Mt Marcy exceeds those on Mt McIntyre by 27. But there are 29 species on Mt Marcy that were not seen on Mt McIntyre and two on Mt McIntyre that were not found on Mt Marcy. These two are *Kalmia angustifolia* L. and *Ilicioides mucronata*, (L.) Britton.

Seed bearing plants

<i>Coptis trifolia</i> (L.) <i>Salisb.</i>	Goldthread
<i>Viola blanda</i> <i>Willd.</i>	Sweet white violet
<i>Arenaria Groenlandica</i> (Retz) <i>Spreng.</i>	Mountain sandwort
<i>Alsine borealis</i> (Bigel.) <i>Britton</i>	Northern stitchwort
<i>Oxalis Acetosella</i> L.	Wood sorrel
<i>Potentilla tridentata</i> <i>Soland.</i>	Three toothed cinquefoil
<i>Rubus strigosus</i> <i>Mx.</i>	Red raspberry
R. <i>Americanus</i> (Pers.) <i>Britton</i>	Dwarf raspberry
<i>Sorbus sambucifolia</i> (C. & S.) <i>Roem.</i>	Western mountain ash
<i>Spiraea salicifolia</i> L.	Meadow sweet
<i>Amelanchier oligocarpa</i> (Mx.) <i>Roem.</i>	Oblong fruited Juneberry
<i>Ribes prostratum</i> L'Her.	Fetid currant
<i>Chamaenerion angustifolium</i> (L.) <i>Scop.</i>	Fireweed. Willow-herb
<i>Drosera rotundifolia</i> L.	Round leaved sundew
<i>Cornus Canadensis</i> L.	Bunchberry. Sugarberry
<i>Linnaea borealis</i> L.	Twin flower
<i>Lonicera coerulea</i> L.	Mountain fly honeysuckle
<i>Houstonia coerulea</i> L.	Bluets
<i>Solidago macrophylla</i> <i>Pursh</i>	Mountain goldenrod
S. <i>alpestris</i> W. & K.	Alpine goldenrod
<i>Nabalus nanus</i> (Bigel.) <i>DC.</i>	Low rattlesnake root
N. <i>Boottii</i> <i>DC.</i>	Boott's rattlesnake root
<i>Vaccinium caespitosum</i> <i>Mx.</i>	Tufted bilberry. Dwarf bilberry
V. <i>Pennsylvanicum</i> <i>Lam.</i>	Low blueberry
V. <i>Penn. angustifolium</i> <i>Gray</i>	Narrow leaved low blueberry
V. <i>uliginosum</i> L.	Bog bilberry
<i>Oxycoccus Oxycoccus</i> (L.) <i>MacM.</i>	Small cranberry
<i>Chiogenes hispidula</i> (L.) T. & G.	Creeping snowberry
<i>Chamaedaphne calyculata</i> (L.) <i>Moench</i>	Leather leaf
<i>Ledum Groenlandicum</i> <i>Oeder</i>	Labrador tea
<i>Kalmia glauca</i> <i>Ait.</i>	Swamp laurel
<i>Rhododendron Lapponicum</i> (L.) <i>Wahl.</i>	Lapland rosebay
<i>Rhinanthus Crista-galli</i> L.	Rattle. Rattlebox
<i>Melampyrum lineare</i> <i>Lam.</i>	Cow wheat
<i>Trientalis Americana</i> <i>Pursh</i>	Star flower
<i>Chelone glabra</i> L.	Snake head
<i>Diapensia Lapponica</i> L.	Lapland diapensia
<i>Gentiana linearis</i> <i>Froel.</i>	Narrow leaved gentian
<i>Empetrum nigrum</i> L.	Crowberry
<i>Betula glandulosa</i> <i>Mx.</i>	Scrub birch
B. <i>papyrifera</i> <i>Marsh.</i>	Paper birch. Canoe birch. White birch
<i>Alnus Alnobetula</i> (Ehrh.) <i>K. Koch</i>	Green alder
<i>Salix Uva-ursi</i> <i>Pursh</i>	Bearberry willow
<i>Picea Canadensis</i> (Mill.) <i>B. S. P.</i>	White spruce
P. <i>brevifolia</i> <i>Pk.</i>	Swamp spruce
<i>Abies balsamea</i> (L.) <i>Mill.</i>	Balsam. Balsam fir

<i>Juniperus nana</i> Willd.	Low juniper
<i>Habenaria dilatata</i> (Pursh) Hook.	Tall white bog orchis
<i>Streptopus roseus</i> Mx.	Sessile leaved twist stalk
<i>S. amplexifolius</i> (L.) DC.	Clasping leaved twist stalk
<i>Clintonia borealis</i> (Ait.) Raf.	Northern clintonia
<i>Unifolium Canadense</i> (Desf.) Greene	Two leaved Solomon's seal
<i>Veratrum viride</i> Ait.	Indian poke
<i>Juncus trifidus</i> L.	Slender fringed rush
<i>J. filiformis</i> L.	Thread rush
<i>Juncoides parviflorum</i> (Ehrh.) Coville	Small flowered wood rush
<i>Scirpus caespitosus</i> L.	Tufted club rush
<i>Eriophorum vaginatum</i> L.	Sheathed cotton grass
<i>Carex scirpoidea</i> Mx.	Scirpus-like sedge
<i>C. canescens</i> L.	Silvery sedge
<i>C. brunnescens</i> (Pers.) Poir.	Brownish sedge
<i>C. trisperma</i> Dew.	Three fruited sedge
<i>C. Magellanica</i> Lam.	Magellan sedge
<i>C. sterilis</i> Willd.	Little prickly sedge
<i>C. Bigelovii</i> Torr.	Bigelow's sedge
<i>C. pauciflora</i> Lightf.	Few flowered sedge
<i>Agrostis rubra</i> L.	Red bent grass
<i>Calamagrostis Canadensis</i> (Mx.) Bv.	Blue joint grass
<i>C. breviseta</i> (Gray) Scrib.	Pickering's reed grass
<i>Stipa Macounii</i> Scrib.	Macoun's stipa
<i>Poa laxa</i> Haenke	Mountain spear grass
<i>Deschampsia flexuosa</i> (L.) Trin.	Wavy hair grass
<i>Savastana alpina</i> (Sw.) Scrib.	Alpine holy grass
<i>Phleum pratense</i> L.	Timothy grass
<i>Cinna latifolia</i> (Trev.) Griseb.	Slender wood reed grass
<i>C. arundinacea</i> L.	Wood reed grass

Spore bearing plants

Ferns

<i>Dryopteris spinulosa</i> (Retz) Kuntze	Spinulose shield fern
<i>Phegopteris Phegopteris</i> (L.) Underw.	Long beech fern

Club mosses

<i>Lycopodium Selago</i> L.	Fir club moss
<i>L. annotinum</i> L.	Stiff club moss
<i>L. annotinum pungens</i> Spring	Prickly stiff club moss
<i>L. clavatum</i> L.	Running pine. Club moss

Mosses

<i>Sphagnum cymbifolium</i> Ehrh.	<i>Sphagnum Russowii</i> Warnst.
<i>S. medium</i> Limpr.	<i>S. strictum</i> Lindb.
<i>S. acutifolium</i> Ehrh.	<i>S. sedoides</i> Brid.

Sphagnum Pylaesii *Brid.*
 Andraea petrophila *Ehrh.*
 Cynodontium polycarpum *Schimp.*
 Dicranum fulvum *Hook.*
 D. fulvellum *Sm.*
 D. elongatum *Schwaegr.*
 D. fuscescens *Turn.*
 D. scoparium *Hedw.*
 Fissidens osmundoides *Hedw.*
 Ceratodon purpureus *Brid.*
 Barbula tortuosa *W. & M.*
 Grimmia conferta *Funk*
 G. ovata *W. & M.*
 Racomitrium Sudeticum *B. & S.*
 R. fasciculare *Brid.*
 R. microcarpum *Brid.*
 Conostomum boreale *Sw.*
 Webera nutans *Hedw.*
 W. elongata *Schwaegr.*
 Aulacomnion turgidum *Schwaegr.*

Aulacomnion palustre *Schwaegr.*
 Pogonatum alpinum *Rockl.*
 Polytrichum strictum *Banks*
 P. Ohioense *R. & C.*
 P. juniperinum *Willd.*
 Tetraplodon mnioides *B. & S.*
 Myurella julacea *B. & S.*
 Hypnum recurvans *Schwaegr.*
 H. denticulatum *L.*
 H. uncinatum *Hedw.*
 H. rugosum *L.*
 H. Crista-castrensis *L.*
 H. reptile *Mx.*
 H. ochraceum *Turn.*
 H. sarmentosum *Wahl.*
 H. cuspidatum *L.*
 H. Schreberi *Willd.*
 H. splendens *Hedw.*
 H. umbratum *Ehrh.*

Liverworts

Ptilidium ciliare *Nees*
 Bazzania deflexa *Underw.*
 Blepharostoma trichophyllum *Dumort.*
 Cephalozia multiflora *Spruce*
 Scapania nemorosa (*L.*) *Nees*
 S. undulata (*L.*) *Dumort.*
 Mylia Taylori *S. F. Gray*

Harpanthus scutatus *Spruce*
 Jungermannia barbata *Schreb.*
 J. gracilis *Sleich.*
 J. Michauxii *Weber*
 J. minuta *Crantz*
 Marsupella emarginata *Dumort.*

Lichens

Cetraria aculeata (*Schreb.*) *Fr.*
 C. Islandica (*L.*) *Ach.*
 C. nivalis (*L.*) *Ach.*
 C. ciliaris *Ach.*
 C. lacunosa *Ach.*
 C. Oakesiana *Tuckm.*
 Evernia furfuracea (*L.*) *Mann*
 E. furf. Cladonia *Tuckm.*
 Alectoria jubata (*L.*) *Fr.*
 Parmelia saxatilis (*L.*) *Fr.*
 P. physodes (*L.*) *Ach.*
 P. stygia (*L.*) *Ach.*
 P. conspersa (*Ehrh.*) *Ach.*
 Umbilicaria proboscidea (*L.*) *Stenh.*
 U. erosa (*Web.*) *Hoffm.*

Umbilicaria pustulata (*L.*) *Hoffm.*
 Nephroma laevigatum *Ach.*
 Peltigera canina spongiosa *Tuckm.*
 Ephebe pubescens *Fr.*
 Biatora Diapensiae (*Th. Fr.*) *Tuckm.*
 B. granulosa (*Ehrh.*) *Poetsch*
 Buellia petraea (*Flot.*) *Tuckm.*
 B. geographica (*L.*) *Tuckm.*
 B. spuria (*Schaer.*) *Arn.*
 Lecanora badia (*Pers.*) *Ach.*
 L. ventosa (*L.*) *Ach.*
 L. tartarea (*L.*) *Ach.*
 Rinodina sophodes (*Ach.*) *Nyl.*
 Stereocaulon paschale (*L.*) *Fr.*
 S. condensatum *Hoffm.*

Cladonia symphycarpa <i>Fr.</i>	Cladonia rang. sylvatica <i>L.</i>
C. cariosa (<i>Ach.</i>) <i>Spreng.</i>	C. rang. alpestris <i>L.</i>
C. decorticata <i>Floerke</i>	C. amaurocraea (<i>Fl.</i>) <i>Schaer.</i>
C. pyxidata (<i>L.</i>) <i>Fr.</i>	C. uncialis (<i>L.</i>) <i>Fr.</i>
C. gracilis (<i>L.</i>) <i>Nyl.</i>	C. cornucopioides (<i>L.</i>) <i>Fr.</i>
C. grac. elongata <i>Fr.</i>	C. crisatella <i>Tuckerm.</i>
C. squamosa <i>Hoffm.</i>	C. deformis (<i>L.</i>) <i>Hoffm.</i>
C. furcata (<i>Huds.</i>) <i>Fr.</i>	Thamnolia vermicularis (<i>Sw.</i>) <i>Schaer.</i>
C. rangiferina (<i>L.</i>) <i>Hoffm.</i>	Baeomyces aeruginosus (<i>Scop.</i>) <i>DC.</i>
	Lecidea arctica <i>Sommerf.</i>

Fungi

Clitocybe laccata (<i>Scop.</i>) <i>Fr.</i>	Puccinia Scirpi <i>DC.</i>
Omphalia umbellifera (<i>L.</i>) <i>Fr.</i>	Peridermium decolorans <i>Pk.</i>
O. montana <i>Pk.</i>	AEEcidium houstoniatum <i>Schw.</i>
Galera Hypnorum (<i>Batsch</i>) <i>Fr.</i>	Coleosporium Solidaginis (<i>Schw.</i>) <i>Thum.</i>
G. Sphagnorum (<i>Pers.</i>) <i>Fr.</i>	Septoria brevis <i>Pk.</i>
Hygrophorus conicus (<i>Scop.</i>) <i>Fr.</i>	Leptosphaeria Marcyensis (<i>Pk.</i>) <i>Sacc.</i>
H. psittacinus <i>Fr.</i>	L. Crepini (<i>West.</i>) <i>De Not.</i>
Russula foetens (<i>Pers.</i>) <i>Fr.</i>	Sphaerella alnicola <i>Pk.</i>
Cantharellus umbonatus <i>Fr.</i>	Dothidella Alni <i>Pk.</i>
Boletus illudens <i>Pk.</i>	Hypoderma nervisequum (<i>DC.</i>) <i>Fr.</i>
Ustilago Caricis (<i>Pers.</i>) <i>Fckl.</i>	Rhytisma salicinum (<i>Pers.</i>) <i>Fr.</i>
	Taphrina bacteriosperma <i>Johan.</i>

Summary

Seed bearing plants	75
Ferns	2
Club mosses	3
Mosses	45
Liverworts	13
Lichens	45
Fungi	23
Spore bearing plants	131
Total	206

Viola blanda Willd.

The sweet white violet grows on the sloping marsh east of the signal station. It is the only violet of the summit. The marsh violet, *V. palustris* L. is credited to the White mountains of New Hampshire but has not yet been found in the Adirondacks.

***Oxalis Acetosella* L.**

The wood sorrel is one of the abundant plants of the Adirondacks. Its pretty trifoliate leaves supported on slender petioles may be seen almost everywhere in the woods. Their pleasant acid flavor is quite refreshing to the thirsty tourist when in his long tramps through the woods he fails to find potable water. The flowers are attractive by their white petals striped with red or purplish lines. The ripened seeds are thrown to some distance by the sudden elastic bursting of the mature seed vessel.

***Rubus strigosus* Mx.**

The red raspberry ascends to the open mountain summit, but rarely if ever bears fruit there. Once only have I seen it in flower in this elevated station. This was in August and but few flowers were seen. A single fruit composed of only three drupelets had begun to develop. The plant making this effort to bear fruit was far away from the summit and near the tree limit. The lack of vigor in the plants, the prevailing low temperature and the lateness in flowering, together with the probable absence of the insects suitable for the proper pollenizing of the flowers must make fruit bearing difficult and uncertain.

***Cornus Canadensis* L.**

The bunchberry, also called dwarf cornel and sugarberry, is one of the very common plants of the Adirondack region. It is found almost everywhere, growing on the mountains, in the valleys and passes, in woods and marshes and open places. To the superficial observer it may appear to have a single cluster of leaves and a single flower with four broad white petals, opening just above the leaves. A closer observation would show that the supposed petals are involucral bracts which surround a cluster of several very small flowers. These are succeeded by a cluster of beautiful bright red fruits which when fully ripe are edible.

***Lonicera coerulea* L.**

The mountain fly honeysuckle ascends almost to the very top of the mountain. It occurs behind the sheltering rocks but a short distance south or southeast of the signal station. It is one of the early flowering shrubs. Its leaves bear some resemblance to those of the bog bilberry, *Vaccinium uliginosum* L.

***Solidago alpestris* W. & K.**

Two goldenrods inhabit this bleak place and in August give a cheerful aspect to it by the presence of their large heads of attractive golden yellow flowers. The alpine goldenrod is smaller than the mountain goldenrod,

S. macrophylla Pursh, but its flower heads are quite as large and beautiful. Its leaves are narrower and it does not descend below the tree limit. The mountain goldenrod is less particular in its habitat and descends even to the valleys of North Elba. It is specially abundant in the half open and half shaded places among the small balsam fir trees that grow near the tops of the highest mountains and cover the summits of those which do not reach above the tree limit. In such places the ground is usually moist and often covered with mosses. Probably there is no Adirondack peak having an altitude of 3500 ft or more on which this goldenrod does not grow.

***Nabalus Boottii* DC.**

In *New York state flora* this species is credited to Mt Whiteface and *N. nanus* DC. to Mt Marcy. Till the present year Mt Whiteface has been the only known station in our state for Boott's rattlesnake root, and it seemed a little strange that it should be on one mountain and not on the other. In August I visited Mt Marcy and was delighted to find it growing there in a secluded place sheltered on one side by a high out-cropping rock and on the other by a dense growth of small balsam fir trees. The plants were thrifty and in flower.

***Vaccinium caespitosum* Mx.**

The tufted bilberry is a rare species with us. The station on Mt Marcy and one on Mt Whiteface are the only localities where I have seen it. On Mt Marcy it was seen in several places the past season, but in every instance without fruit. Several years ago, however, fertile specimens were found there. In *Illustrated flora*, *V. Vitis-Idaea* L. is credited to the Adirondacks, but I have not yet found it. The low blueberry and its narrow leaved variety, *V. Pennsylvanicum angustifolium* Gray, both occur here. The bog bilberry, *V. uliginosum* L., is very abundant and somewhat variable. It has a narrow leaved form and a form with slender stem, in which the leaves appear to be half withered and the plant as if about to die. Possibly this may be a diseased condition of the plant.

***Oxycoccus Oxycoccus* (L.) Mac M.**

The small cranberry is found in both the marsh spots previously described.

***Kalmia glauca* Ait.**

The swamp laurel is not rare in the Adirondacks. It occurs in many of the marshes and on the marshy shores of lakes. On the summit of Mt McIntyre it is associated with its near relative the sheep laurel, *Kalmia angustifolia* L., but this species is strangely absent from the top of Mt Marcy.

Rhinanthus Crista-galli L.

The summit of Mt Marcy is the only place known to me in our state, where the rattlebox or yellow rattle grows. It may be found on the southwest slope not far from the signal station. It was discovered in this locality nearly 30 years ago and it still persists, apparently having no difficulty in maintaining its position. It is one of the very few annual plants found in this elevated place.

Picea Canadensis (Mill.) B. S. P.

On the eastern slope a dwarf spruce is occasionally seen among the small starved-looking balsam firs. It does not fruit and its foliage has not the silvery green hue commonly seen in the white spruce. But its twigs are glabrous and on this account it is referred to the white spruce. The abundant half prostrate form with pubescent twigs was formerly supposed to be a sterile dwarf of the black spruce, but because of its very short leaves and their peculiar hue I have considered it a mountain form of the swamp spruce, *Picea brevifolia* Pk.

Abies balsamea (L.) Mill.

The balsam fir is more abundant than any other of the dwarf forms of trees found on the open summit. Its hardy character is also shown by the fact that it sometimes bears fruit here, but its cones are much smaller than those produced by trees growing at lower altitudes. In the botanical descriptions of this species the cones are said to be two to four inches long. The cones of these dwarf trees are generally less than two inches long. They are usually 10 to 20 lines long. The leaves are shorter than usual and many of them are emarginate at the apex. In this character and in the short cones, the species makes an approach toward an agreement with the characters ascribed to Fraser's balsam fir, *Abies Fraseri* (Pursh) Lindl. Fraser's balsam fir is a southern species inhabiting the mountains of North Carolina, Tennessee and southwestern Virginia. The curious thing is that our northern species, under the influence of a prevailing low temperature, should develop characters similar to those belonging to a southern species presumably habituated to a higher temperature.

Juniperus nana Willd.

In my earlier visits to Mt Marcy, the alpine form of this species was there, but I have not seen it in more recent visits. The same remark may be made concerning the tall white bog orchis, the slender fringed

rush, the scirpus-like sedge and Macoun's stipa. Nevertheless I have retained these species in the list, since it is possible that they are still there.

Carex Bigelovii Torr.

Bigelow's sedge is the only one found on the highest part of the mountain. It grows about the rock on which the signal is planted. With one exception the other sedges will be found on the two marshes. Probably no other Adirondack peak has as many species of sedges and grasses growing on it as this. The list contains the names of eight sedges and 10 grasses.

Dryopteris spinulosa (Retz) Kuntze

The spinulose shield fern and the long beech fern ascend to the open summit of Mt Marcy, but they fail to fruit in this bleak locality. The former usually has a pale yellowish green hue, short fronds and pinnae more blunt than in well developed specimens. It is common, well developed and fertile among the small balsam firs below the tree limit. The latter is also smaller than usual and is evidently not fully at home here.

Sphagnum cymbifolium Ehrh.

The numerous peat mosses found here are good witnesses to the moist character of the place. They require a copious supply of water and refuse to grow where this is not obtainable. They also indicate, by their peculiarly modified form, the cold and windy character of the locality. Their stems are shorter than usual, the branches are crowded and the plants are closely compacted in dense cushions as if for mutual support and protection. In the more sheltered places they approach more nearly their normal development.

Sphagnum sedoides Brid.

This is a singular peat moss. It forms soft mats of limited extent upon the wet surface of rocks. Beginning at the margin of the thin soil covering the upper part of an outcrop of rock, the stems lie prostrate on the surface, parallel to each other, with their growing tips away from the soil and lower than their bases. The color of this peat moss is usually vinous red or purplish brown, but sometimes it is greenish, yellowish or yellowish brown. There are two forms, one having the stems simple or nearly so, the other bearing numerous short curved branches. The name *S. sedoides* was formerly limited to the simple form and *S. Pylaeii* applied to the branched form. In the recently published *Analytic keys to the genera and species of North American mosses*, the two forms are included as one species under the name *Sphagnum Pylaei*.

Dicranum fulvellum *Smith*

A rare moss not yet found elsewhere in our state. In our specimens the dry capsule is slightly striate.

Dicranum elongatum *Schwaegr.*

This very distinct species forms dense mats on the ground or in fissures of rocks. The long slender densely compacted stems and erect or appressed leaves make it easily recognized. This is the only locality in which I have found it.

Barbula tortuosa *W. & M.*

This moss forms cushions on rocks. It is not very rare in the Adirondacks but is sterile on Mt Marcy.

Grimmia ovata *W. & M.*

A rare but pretty little moss, which forms small dark green tufts on bare rocks. It ascends to the very summit of the mountain and occurs on the rocks near the signal. It is fertile here. It is not known to occur anywhere else in our state, but in the *Manual* it is credited to various places in the Rocky mountain region.

Conostomum boreale *Sw.*

This is a very rare but most beautiful and attractive species. It forms cushions or tufts on rocks, and loves cold, mountainous regions. In our state it is peculiar to Mt Marcy. Its pale glaucous green color and its closely imbricated five ranked leaves make it a very distinct and easily recognized species. It bears fruit in July.

Aulacomnion turgidum *Schwaegr.*

Damp ground on the northwestern slope. Sterile and in limited quantity but a large moss easily known by its long, simple or sparingly divided stems and obtuse leaves. This is the only locality in our state where I have found it.

Tetraplodon mnioides *B. & S.*

This moss was found here many years ago by the late Prof. Lesquereux and recently by Mrs Britton. It is not common.

Hypnum sarmentosum *Wahl.*

Damp or wet places under overhanging rocks on the western and northwestern slope. Sterile and not abundant. Easily known by its dark purple or intermingled green and purple foliage.

Cetraria aculeata (*Schreb.*) *Fr.*

This is a rare lichen with us and occurs here and on Mt Whiteface in small quantity. The Iceland moss, *C. Islandica* (L.) Ach., is abundant.

Umbilicaria proboscidea (L.) *Stenh.*

The species of *Umbilicaria* are not plentiful here. The three recorded in the list were all found growing near each other on the same rock. This one extends northward to Arctic America and Greenland.

Thamnolia vermicularis (Sw.) *Schaer.*

This singular lichen attracts attention by its pure white color. It is plentiful, growing among mosses and other lichens on the thin soil of the mountain tops but it is always sterile with us. Its podetia or stems are simple or sparingly branched, hollow, sharp pointed 2 to 4 in. long and about as thick as a goose quill. It is more abundant on Mt McIntyre than on Mt Marcy.

Cladonia cornucopioides (L.) *Fr.*

Three Cladonias having red apothecia occur on the mountain top. They are the present species, *C. deformis* (L.) Hoffm. and *C. cristatella* Tuckm. The reindeer moss, *C. rangiferina* (L.) Hoffm., is abundant and variable. There are 13 species of Cladonia represented here. In very dry weather we can feel them crumble under our feet as we walk over them. To a botanist who dislikes to destroy these interesting plants, this is a disagreeable sensation.

Biatora Diapensiae (Th. Fr.) *Tuckm.*

A rare lichen inhabiting Diapensia sods and not known to occur elsewhere in our state. In *Tuckerman's synopsis of N. A. lichens* it is credited to the White mountains. Its near relative, *B. granulosa* (Ehrh.) Poetsch is common in the Adirondacks, growing on and encrusting turfy ground, dead mosses and decaying wood, both on mountain tops and in the valleys.

Buellia geographica (L.) *Tuckm.*

This lichen is interesting because of its beauty and its habitat. It grows on the hard surface of bare rocks from which it is scarcely possible to detach it. It forms a thin crust over the surface and by its contrast of bright yellow and black colors it attracts the attention of the observer and enlivens the otherwise unattractive and gloomy appearance of the dark, weather beaten surface of the rock. It carries us back in imagina-

tion to the time when the whole mountain top was bare rock, and by its peculiar habitat suggests the possibility that it may have been one of the first plants to take possession of this lofty rocky summit.

***Omphalia umbellifera* (L.) Fr.**

This is the common mushroom of the mountain top. It is a small species whose cap is rarely more than an inch broad. Its color is commonly pale yellow in this locality, but it is sometimes white. *O. montana* Pk., found here about 25 years ago, has not since been found.

***Boletus illudens* Pk.**

A single large well developed specimen of this fungus was found on the summit in August. The species also occurs on low land near the sea shore. It is evidently a species of wide range and capable of growing in places of very different altitudes.

***Ustilago Caricis* (Pers.) Fckl.**

Abundant on Magellan sedge on the lower marsh. The fungus attacks the ovaries or seeds of the sedge and covers them with a black coat of spores.

***Peridermium decolorans* Pk.**

In some seasons this parasitic fungus is plentiful on the leaves of spruces. The feeble ones of cold marshes and mountain tops appear to be specially liable to attack. It discolors the leaves it attacks, turning them yellow and increasing their unnatural, unthrifty or sickly appearance. In his revision of the rust fungi of coniferous trees, Baron Thümen considered this fungus a variety of *Peridermium abietinum* A. & S., but the differences between the two are sufficient, in my opinion, to warrant their separation as distinct species. They may be separated at a glance by the difference in the discoloration of the leaves attacked by them. The difference in the shape of their spores also affords a distinctive feature, but this is not visible without the aid of a microscope. Probably our fungus is the aecidial form of some species of *Chrysomyxa*. *P. abietinum* is the aecidial form of *Chrysomyxa Ledi* (A. & S.) De Bary, a species not yet found within our limits.

***Hypoderma nervisequum* (DC.) Fr.**

This fungus forms a black line on the lower surface of leaves of balsam fir. It follows the vein of the leaf.

Rhytisma salicinum (*Pers.*) *Fr.*

A parasitic fungus which attacks the leaves of various species of willows in Europe, Asia and America. The only willow on the summit of Mt Marcy is the bearberry willow. The fungus forms large, black protuberances on the upper surface of the leaves and black spots on the lower surface directly under the protuberances. The leaves of this willow are so small that usually but one protuberance occupies a leaf.

G**EDIBLE FUNGI****Tricholoma portentosum centrale** *Pk.***CENTRAL TRICHOLOMA****PLATE 57 fig. 1-5**

Pileus convex, sometimes slightly umbonate, viscid, virgate with innate blackish fibrils, sooty brown in the center, pale yellow or greenish yellow elsewhere, flesh white; lamellae moderately broad and close, emarginate, white or yellowish; stem equal, solid, white; spores broadly elliptic, .0003 in. long, .0002 broad.

This variety of the dingy Tricholoma, *T. portentosum*, is well marked by the colors of the cap, which is pale yellow or greenish yellow except in the center where it is sooty brown or blackish brown. Minute brown or blackish lines or fibrils radiate from the center toward the margin. When fresh or moist the surface of the cap is viscid. The flesh is white and the taste mild.

The gills are white or yellowish, rather broad and rounded at the end next the stem to which they are narrowly and slightly attached. Sometimes they are transversely striated or streaked by lighter lines. The stem is nearly equal in thickness in all its parts. It is solid and white or whitish both externally and internally. The cap is from 1 to 3 in. broad; the stem 1.5 to 3 in. long, 3 to 5 lines thick. The plants are gregarious and inhabit thin woods. They may be found in autumn. This is a fairly good edible mushroom, but not superior in any respect to many others that are more abundant. The typical form of the species, *Tricholoma portentosum*, has the cap of a uniform sooty brown color. Saunders and Smith figure a variety which occurs in England and which has the cap greenish yellow with a sooty brown center almost exactly like our plant. The brown color of the central part of the cap is very conspicuous and is suggestive of the name we have given to this variety.

Cortinarius corrugatus *Pk.*

CORRUGATED CORTINARIUS

PLATE 57 *fig.* 6-13

Pileus fleshy, broadly campanulate or very convex, viscid when moist, coarsely corrugated, bright yellow, reddish yellow, tawny or ochraceous, flesh white; lamellae close, pallid when young, becoming tawny with age; stem rather long, equal, hollow, bulbous, pallid or yellowish, the bulb viscid and usually colored like the pileus; spores broadly elliptic, rough, .00045 to .00055 in. long, .0003 to .0004 broad.

The corrugated Cortinarius is a well marked and easily recognized species, quite distinct from its allies. Although the color of the pileus is variable, its viscid, corrugated surface and the viscid bulb of the stem afford distinctive and easily recognized characters. Sometimes the corrugations or wrinkles anastomose with each other in such a way as to give a reticulated appearance. The color varies from yellow to reddish tawny or reddish ochraceous. The margin in young plants is incurved.

There is a variety in which the cap is adorned with darker colored spots or scales. This bears the name, variety *subsquamosus*. In all other respects it is like the species.

The gills are closely placed side by side. They are at first of a pale hue but assume a darker and more definite tawny color with age. They are usually minutely uneven or eroded on the edge and transversely striate on the sides. They are slightly narrowed toward the stem.

The stem is generally a little longer than the width of the cap. It is commonly smooth but sometimes sprinkled near the top with minute yellowish particles and adorned below with a few fibrils. It is hollow and has a distinct viscid bulbous base, the viscosity of which is a peculiar feature. This bulb in the very young plant is even broader than the young cap that at this stage of development appears to rest upon it. The color of the bulb is usually like that of the cap, but the stem is commonly paler than either.

The cap is 2 to 4 in. broad; the stem 3 to 5 in. long, 3 to 8 lines thick. The plants are gregarious in woods and bushy places and may be found from June to September. It sometimes grows in considerable abundance and as an edible species it is not to be despised.

Hygrophorus puniceus *Fr.*

RED HYGROPHORUS

PLATE 58 *fig.* 1-7

Pileus thin, fragile, conical or campanulate, becoming expanded and often wavy or lobed, glabrous, viscid, bright red, paler when old; lamellae broad, thick, distant, yellow, often reddish; stem equal or somewhat ventricose, hollow, yellow or red and yellow, usually white at the base; spores elliptic, .0003 to .0004 in. long, .0002 broad.

The red *Hygrophorus* is a rather large but very tender fragile species. Its bright red cap makes it a beautiful and conspicuous object. It is however often irregular and lobed or split on the margin. Its color is apt to fade to yellow when old. The whole plant is so fragile that it must be handled with care to prevent its breaking in pieces.

The gills are rather broad and moderately distant from each other. Their color is yellow or red and yellow and their attachment to the stem slight. The stem is rather thick and sometimes narrowed toward each end. It is hollow, at least when mature and is usually yellow at the top, red in the middle and white at the base. The cap is 1 to 3 in. broad; stem 2 to 3 in. long, 4 to 6 lines thick.

It grows in damp or mossy places both in woods and open grounds and appears from July to September. It surpasses our other bright red species in size. It may be separated from the carmine *Hygrophorus*, *H. coccineus*, by its larger size, the narrow attachment of the gills to the stem and the white color of the base of the stem. From the vermilion *Hygrophorus*, *H. miniatus*, it is distinguished by its glabrous viscid cap. All of these species are edible and no harm would come to the eater if one should be mistaken for either of the others. The red *Hygrophorus* is very tender and sapid and may be classed as an excellent though not an abundant mushroom.

Hygrophorus virgineus (*Wulf.*) *Fr.*

WHITE HYGROPHORUS

PLATE 58 *fig.* 8-12

Pileus fleshy, convex, often becoming plane or centrally depressed, sometimes irregular or wavy on the thin margin, moist, white, flesh white, taste mild; lamellae thick, distant, decurrent, white; stem firm, smooth, solid, equal or tapering downward, white; spores elliptic, .00025 to .0003 in. long, .0002 broad.

This species is white in all its parts and when regular and well formed is a pretty mushroom. But the large specimens are apt to be irregular. The cap is thick and fleshy except at the margin, and though it may be moist it is not viscid. In the European plant its surface sometimes cracks into small areas and becomes floccose when dry, but I have not seen these features in the American plant. The spores in our plant are generally a little smaller than those of the European plant.

The stem is sometimes thickened upward and enlarges as it enters the cap. The cap is 1 to 3 in. broad; the stem 1 to 2 in. long, 3 to 5 lines thick. It is found in grassy ground and pastures in wet weather from July to October. It sometimes occurs in meadows where it is overshadowed by tall grass. I know of no other wholly white indigenous *Hygrophorus* that grows in such places. Its flesh is less tender than that of the preceding species, but it is a good mushroom and one that would be more useful if more abundant, and more eagerly sought if better known.

***Hypholoma incertum* Pk.**

UNCERTAIN HYPHOLOMA

PLATE 58 *fig.* 13-20

Pileus thin, fragile, at first ovate or subcampanulate, then broadly convex, hygrophanous, whitish, often tinged with yellow, commonly white when dry, the thin margin often wavy lobed or irregular and in the young plant adorned with fragments of the white floccose fugacious veil, flesh white; lamellae thin, narrow, close, adnate, at first whitish, then purplish brown; stem equal, hollow, easily splitting, white or whitish; spores elliptic, .0003 in. long, .0002 broad.

The thin fragile cap is sometimes split on the margin. It has a moist appearance when young and fresh, but this is lost with age and in dry weather. The prevailing color is white, but a yellow tint is often added, specially in the center. The surface is occasionally slightly radiately wrinkled. The margin is sometimes curved upward, and a faint purplish tint apparently due to the color of the mature gills, is sometimes seen. In the young plant floccose fragments of the ruptured veil adhere to it, but these soon disappear.

The gills when young are nearly white, but they become darker with advancing age and when fully mature are purplish brown. They are attached to the stem by their entire width.

The stem is slender, cylindric, hollow and white. The cap is 1 to 2.5 in. broad; the stem 1 to 3 in. long, 1 to 3 lines thick. It grows in

groups or in clusters in lawns, gardens, copses and pastures and may be found throughout the season if the weather is sufficiently wet. Its flesh is tender but not highly flavored, and it may well be regarded as a very good mushroom.

It bears such a close external resemblance to Candolle's *Hypholoma*, *H. Candolleanum*, that it has been thought by some to be a variety of it. This close similarity is suggestive of the specific name. It differs from that species in having the young gills white or whitish instead of violaceous and in the gills being adnate instead of adnexed. In the color of the gills and in the character of their attachment to the stem the species makes an approach to a similarity with the appendiculate *Hypholoma*, *H. appendiculatum*, so that it really holds a place intermediate between this and Candolle's *Hypholoma*. Its paler color and more even dry cap separate it from the appendiculate *Hypholoma*. Its habitat is also different and it is not so apt to grow in tufts.

Lactarius Chelidonium *Pk.*

CELANDINE LACTARIUS

PLATE 59 *fig.* 1-6

Pileus convex, becoming nearly plane and umbilicate or centrally depressed, grayish yellow or pale tawny, sometimes with a few narrow zones on the margin, assuming bluish green tints or stains when old; lamellae narrow, close, adnate or slightly decurrent, grayish yellow, milk saffron color, scanty, mild; stem short, nearly equal, hollow, colored like the pileus; spores yellowish, globose, .0003 in. in diameter.

The celandine *Lactarius* is closely related to the delicious *Lactarius*, from which it may be separated by its smaller size, shorter stem, paler color, narrow gills and saffron colored milk. The cap is either broadly convex, nearly plane or depressed in the center. Sometimes the central depression is small like an umbilicus. The color is grayish yellow or pale tawny and in some instances there are two or three narrow bands or zones near the margin. When old, its cap becomes bluish green or is marked by bluish green stains.

The narrow gills are close together and are attached to the stem by their entire breadth or are slightly decurrent. They are at first of a peculiar grayish yellow or dingy cream color, but when old they are generally whitish pruinose. In some specimens they are wavy or forked at the inner extremity. The milk is scanty and paler than in the delicious *Lactarius*. It is nearly a saffron color and is mild.

The stem is short and cylindric or nearly so, glabrous, hollow and colored like the cap. It is sometimes spotted or stained with bluish green when old, but I have not seen it with such permanent depressed colored spots as often adorn the stems of the allied species, *L. deliciosus*, *L. subpurpureus* and *L. Indigo*. The cap is 2 to 3 in. broad; the stem 1 to 1.5 in. long, 4 to 6 lines thick. It grows in light sandy soil under or near pine trees and occurs from July to September. Its edible qualities are similar to those of the delicious *Lactarius*.

***Lactarius distans* Pk.**

DISTANT-GILLED LACTARIUS

PLATE 59 fig. 7 to 11

Pileus firm, broadly convex or nearly plane, umbilicate or slightly depressed in the center, with a minute velvety pruinosity, yellowish tawny or brownish orange; lamellae rather broad, distant, adnate or slightly decurrent, white or creamy yellow, the interspaces venose, milk white, mild; stem short, equal or tapering downward, solid, pruinose, colored like the pileus; spores subglobose, .00035 to .00045 in. broad.

The distant-gilled *Lactarius* is similar to the orange *Lactarius* in color, but in other respects it is quite distinct. The short stem, widely separated gills and pruinose surface of the cap are distinctive features. The cap is broadly convex and often has a small central depression or umbilicus. In some cases it becomes nearly plane or even slightly funnel shape by the spreading or elevation of the margin. The surface, specially in young and in well developed specimens, has a soft pruinose or almost velvety appearance to the naked eye, and when viewed through a magnifying glass it is seen to be covered with minute persistent granules. The surface is sometimes wrinkled and frequently it cracks in such a way as to form small angular or irregular areas. The color is a peculiar one, varying somewhat in shade, but with tawny hues prevailing. It has been described as yellowish tawny and brownish orange. The flesh is white or whitish and has a mild taste.

The gills are wide apart, somewhat arched in specimens having a convex cap and slightly decurrent in those with fully expanded or centrally depressed caps. Their color is white or creamy yellow and in old and dried specimens they have a white pruinosity as if frosted by the spores. The milk is white and mild.

The stem is short, rarely more than an inch long, and is cylindric or tapering downward. It is solid and colored and clothed like the cap.

The cap is 1 to 4 in. broad; the stem is usually about 1 in. long, 4 to 8 lines thick. It is found in thin woods, bushy places and pastures from July to September. It is similar to the orange *Lactarius*, *L. volemus*, in its edible qualities. It has several features in common with *Lactarius hygrophoroides* B. & C. and *L. Calceolus* Berk. My reasons for considering it distinct are given in a preceding part of this report.

***Lactarius Gerardii* Pk.**

GERARD'S LACTARIUS

PLATE 59 *fig.* 12 to 16

Pileus broadly convex or nearly plane, sometimes slightly depressed and rugosely wrinkled, sooty brown, flesh white, taste mild; lamellae rather broad, distant, adnate or slightly decurrent, white or whitish with venose interspaces, milk white, mild; stem short, equal or tapering downward, stuffed or hollow, colored like the pileus; spores globose, .00035 to .00045 in. broad.

This *Lactarius* closely resembles the preceding in size and shape, but it differs decidedly in the color of its cap and stem, and in having the latter hollow. It resembles the sooty *Lactarius*, *L. lignyotus* Fr., in color, but differs from it in having the stem short, the gills wide apart and wounds not changing color. In some specimens the center of the cap is furnished with a small umbo or papilla and the surface is wrinkled. It also has an unpolished appearance caused by a pruinosity similar to that of the preceding species but of a sooty brown color. The margin is thin and often wavy or somewhat lobed. The gills are so nearly like those of the preceding species that they need no further description. The plants grow in woods and open places from July to September. In flavor and edibility the species is very similar to the distant-gilled *Lactarius*. In nearly all the species of this genus that I have tried, the flesh is firm but brittle and the flavor not of a high order.

***Cantharellus cinnabarinus* Schw.**

CINNABAR CHANTARELLE

PLATE 60 *fig.* 1-9

Pileus firm, convex or slightly depressed in the center, often irregular with a wavy or lobed margin, glabrous, cinnabar red, flesh white; lamellae narrow, distant, branched, decurrent, red; stem equal or tapering downward, glabrous, solid or stuffed, red; spores elliptic, .0003 to .0004 in. long, .00016 to .0002 broad.

The cinnabar Chantarelle is readily recognized by its color. It is externally red in all its parts, the interior only being white. It is a small species but often quite irregular in shape. Small specimens are more likely to be regular than large ones. Sometimes the cap is more fully developed on one side than on the other. This makes the stem eccentric or in some cases almost lateral. The color is quite constant, but in some instances it is paler and approaches a pinkish hue. It is apt to fade or even disappear in dried specimens. The gills are blunt on the edge as in other species of this genus. They are forked or branched, narrow and decurrent.

The stem is small, smooth and usually rather short. It is generally solid, but in the original description it is characterized as stuffed. The cap is 8 to 18 lines broad; the stem 6 to 12 lines long and 1 to 3 broad. It grows gregariously in thin woods and open places and may be found from July to September. It sometimes occurs in great abundance, which adds to its importance as an edible species. The fresh plant has a tardily and slightly acrid flavor, but this disappears in cooking. In *Epicrisis*, Fries referred this species to the genus *Hygrophorus*, and in *Sylloge* also it is placed in that genus, but it is a true *Cantharellus* and belongs in the genus in which Schweinitz placed it.

***Cantharellus floccosus* Schw.**

FLOCCOSE CHANTARELLE

PLATE 60 *fig.* 10-14

Pileus firm, rather thin, elongated funnel form or trumpet shaped, deeply excavated, floccose squamulose, yellowish or subochraceous; lamellae thick, narrow, close, repeatedly forked branched or anastomosing, very decurrent, ochraceous yellow; stem short; spores ochraceous, elliptic, .0005 to .0006 in. long, .0003 broad, with an oblique apiculus at one end and usually uninucleate.

The floccose Chantarelle is a large and very distinct species. There is nothing with which it can easily be confused. When young it is narrowly club shaped or almost cylindric, but by the expansion of the upper part it soon becomes trumpet shape. The cavity extends even into the stem. The surface of the cap is somewhat floccose or scaly, but the scales may be thick and persistent or thin and evanescent. The color is yellowish inclining to ochraceous, but the inner flesh is white. The flesh is so thin that the weight of the whole plant is less than might be expected, judging from the size.

The gills are narrow, thick and blunt on the edge. They are so much branched and connected by cross veins that much of the hymenial surface has a coarsely reticulated appearance. Both the gills and the interspaces are ochraceous or yellow ochraceous. The stem is very short and may be either glabrous or hairy. In some cases it is elongated and somewhat curved or flexuous and extended like a horizontal root among fallen leaves. The cap is 2 to 4 in. broad at the top, and 3 to 6 in. long. The plants are gregarious and grow in woods from July to September. My trial of its edible qualities was very satisfactory and I consider it a very good mushroom for the table.

***Boletinus pictus* Pk.**

PAINTED BOLETINUS

PLATE 61 *fig.* 1-5

Pileus convex or nearly plane, at first covered with a red fibrillose tomentum, soon spotted with red fibrillose scales, flesh yellowish; tubes tenacious, adnate, pale yellow becoming darker or ochraceous with age, their mouths rather large, angular; stem cylindric, solid, slightly and evanescently annulate by the remains of the fibrillose or webby veil, yellow and glabrous above the annulus, clothed and colored like the pileus below it; spores ochraceous, .00035 to .00045 in. long, .00016 to .0002 broad.

The painted *Boletinus* is a beautiful and easily recognized species. The cap of the young plant is wholly covered by a red fibrillose tomentum which soon separates into tufts or scales and reveals the yellowish color of the surface beneath. In the very young plant the tomentum of the cap is continuous with that of the stem and conceals the young tubes. This connecting part of the tomentum is usually of a paler or grayer color than the rest. With the expansion of the cap it separates from the margin and clings to the stem forming a kind of fibrillose or webby collar around it. This collar is apt to disappear with age. The flesh of the cap is yellowish and when cut or broken and exposed to the air it sometimes slowly assumes a dull reddish color.

The tubes of the young plant are pale yellow, but when mature they are ochraceous. Their mouths are angular and the edges of the dissepiments are uneven. The stem is cylindric or sometimes slightly thicker at the base than at the top. It is yellow at the top but colored and clothed like the cap below the slight collar. The cap is 2 to 4 in. broad; the stem 1.5 to 3 in. long, 3 to 6 lines thick. The species inhabits

woods and mossy swamps. It is most often found under or near pine trees and occurs from July to September. The tubes near the margin of the cap do not separate easily from it and in preparing specimens for cooking it is not necessary to discard them.

***Boletus Clintonianus* Pk.**

CLINTON'S BOLETUS

PLATE 61 *fig.* 6-10

Pileus convex, very viscid or glutinous, glabrous, golden yellow, reddish yellow or chestnut color, flesh pale yellow or whitish, tubes adnate, their mouths small, angular or subrotund, pale yellow when young, ochraceous when mature, changing to brown or purplish brown where bruised; stem equal or slightly thickened at the base, annulate, solid, yellow above the annulus, colored like the pileus below, the annulus thick, persistent, white or whitish; spores brownish ochraceous, .0004 to .00045 in. long, .00016 to .0002 broad.

Clinton's *Boletus* is variable in color. In the typical form, which is represented on plate 61, the color is reddish brown or chestnut, but specimens occur in which it is reddish yellow or even golden yellow. The surface of the cap is very viscid when moist, smooth and shining when dry. The flesh is whitish or pale yellow, but it is apt to fade or become dingy by exposure to the air. The taste is mild.

The tubes are at first concealed by the thick veil. This soon separates from the margin of the cap and forms a thick persistent collar on the stem. When first exposed the tubes are pale yellow, but they become ochraceous or dingy ochraceous in the mature plant. Their mouths are small and nearly round.

The stem is stout, solid and nearly equal in thickness in all its parts. It may be straight or flexuous. It is yellow above the collar and colored like the cap below it. Sometimes the extreme apex is slightly reticulated by the decurrent walls of the tubes, but it is not dotted. The cap is 2 to 5 in. broad; the stem 2 to 5 in. long, 4 to 9 lines thick. This *Boletus* grows in woods and in open places and is generally found under or near tamarack trees. It is specially fond of damp, mossy places, and occurs from July to September. Because of their viscosity the caps are often soiled by adhering dirt or fragments of leaves. It is well therefore to peel them in preparing them for the table and to remove the tubes. It is excellent in flavor and is a fine addition to our list of edible species.

EXPLANATION OF PLATES

PLATE 57

Tricholoma portentosum centrale *Pk.*

Figures CENTRAL TRICHOLOMA

- 1 Young plant
- 2, 3 Two mature plants
- 4 Vertical section of the upper part of a plant
- 5 Four spores $\times 400$

Cortinarius corrugatus *Pk.*

CORRUGATED CORTINARIUS

- 6 Very young plant, showing cap and bulb
- 7 Young plant after elongation of the stem
- 8 Mature plant
- 9 Vertical section of the upper part of a plant
- 10 Transverse section of a stem
- 11 Four spores $\times 400$

Var. subsquamosus *Pk.*

- 12 Immature plant
- 13 Immature plant showing the young gills

PLATE 58

Hygrophorus puniceus *Fr.*

RED HYGROPHORUS

- 1 Young plant
- 2, 3 Two mature plants, one showing the gills
- 4 Vertical section of the upper part of a young plant
- 5 Vertical section of the upper part of a mature plant
- 6 Transverse section of a stem
- 7 Four spores $\times 400$

Hygrophorus virgineus (*Wulf.*) *Fr.*

WHITE HYGROPHORUS

- 8, 9, 10 Three plants showing three forms of cap
- 11 Vertical section of a plant
- 12 Four spores $\times 400$

Hypholoma incertum *Pk.*

UNCERTAIN HYPHOLOMA

- 13 Three young plants united at the base
- 14 Immature plant showing the young gills
- 15, 16 Two mature plants showing the gills
- 17 Vertical section of the upper part of a young plant
- 18 Vertical section of the upper part of a mature plant
- 19 Transverse section of a stem
- 20 Four spores $\times 400$

PLATE 59

Lactarius Chelidonium *Pk.*

CELANDINE LACTARIUS

- 1 Young plant
- 2 Mature plant with marginal zones on the cap
- 3 Mature plant without marginal zones
- 4 Old plant with cap fully expanded
- 5 Vertical section of a plant
- 6 Four spores $\times 400$

Lactarius distans *Pk.*

DISTANT-GILLED LACTARIUS

- 7 Young plant
- 8 Mature plant with convex cap
- 9 Mature plant with cap fully expanded
- 10 Vertical section of a plant
- 11 Four spores $\times 400$

Lactarius Gerardii *Pk.*

GERARD'S LACTARIUS

- 12 Young plant
- 13 Mature plant with convex cap
- 14 Mature plant with cap fully expanded
- 15 Vertical section of a plant
- 16 Four spores $\times 400$

PLATE 60

Cantharellus cinnabarinus *Schw.*

CINNABAR CHANTARELLE

- 1, 2 Two young plants with convex caps
- 3, 4, 5, 6 Four mature plants of various forms
- 7, 8 Vertical sections of two plants
- 9 Four spores $\times 400$

Cantharellus floccosus *Schw.*

FLOCCOSE CHANTARELLE

- 10 Young plant
- 11 Mature plant of small size
- 12 Mature plant of larger size
- 13 Vertical section of a small plant
- 14 Four spores $\times 400$

PLATE 61

Boletinus pictus *Pk.*

PAINTED BOLETINUS

- 1 Young plant
- 2, 3 Two mature plants
- 4 Vertical section of the upper part of a plant
- 5 Four spores $\times 400$

Boletus Clintonianus *Pk.*

CLINTON'S BOLETUS

- 6 Young plant with tubes concealed by the veil
- 7, 8 Two mature plants
- 9 Vertical section of the upper part of a plant
- 10 Four spores $\times 400$

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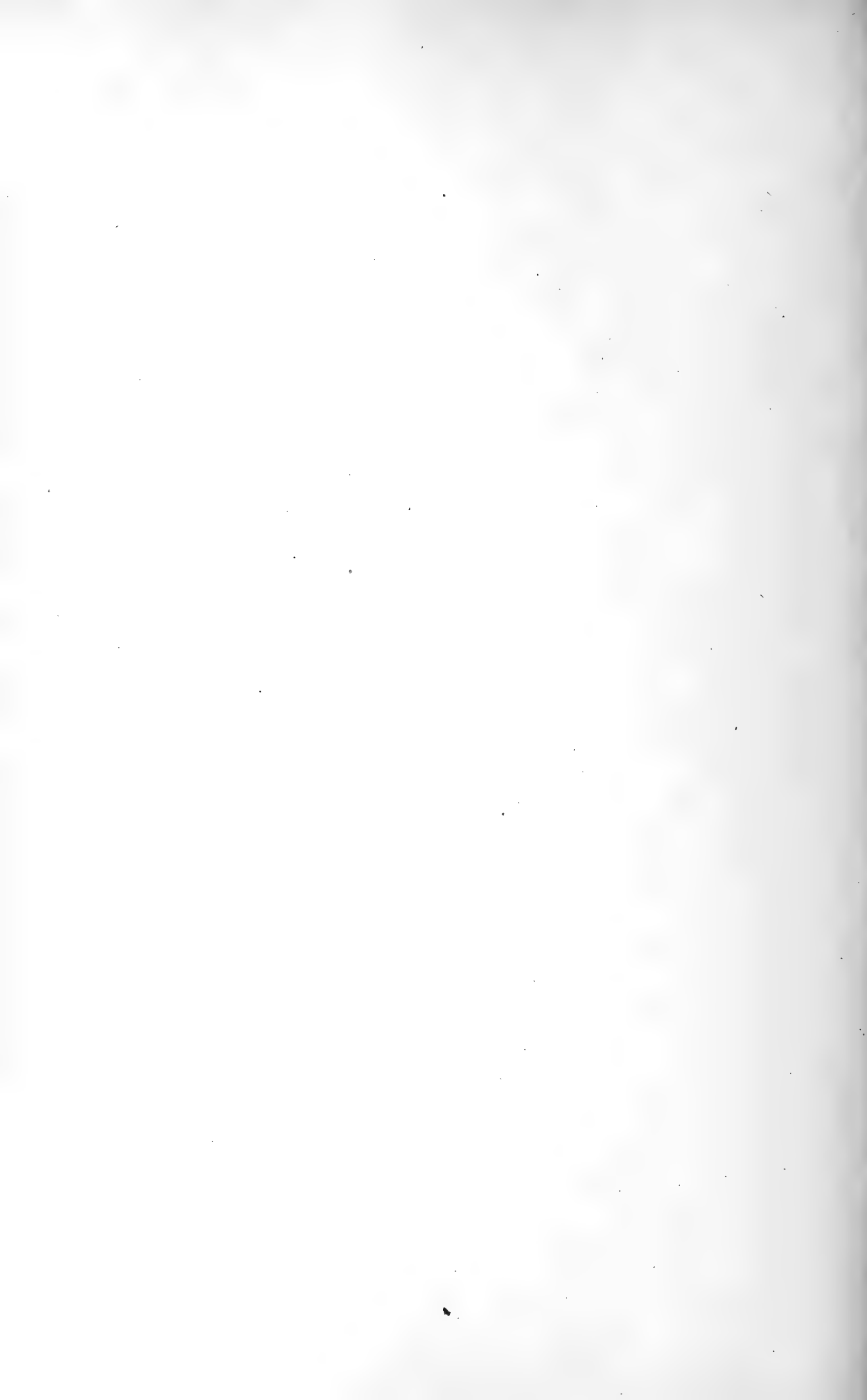
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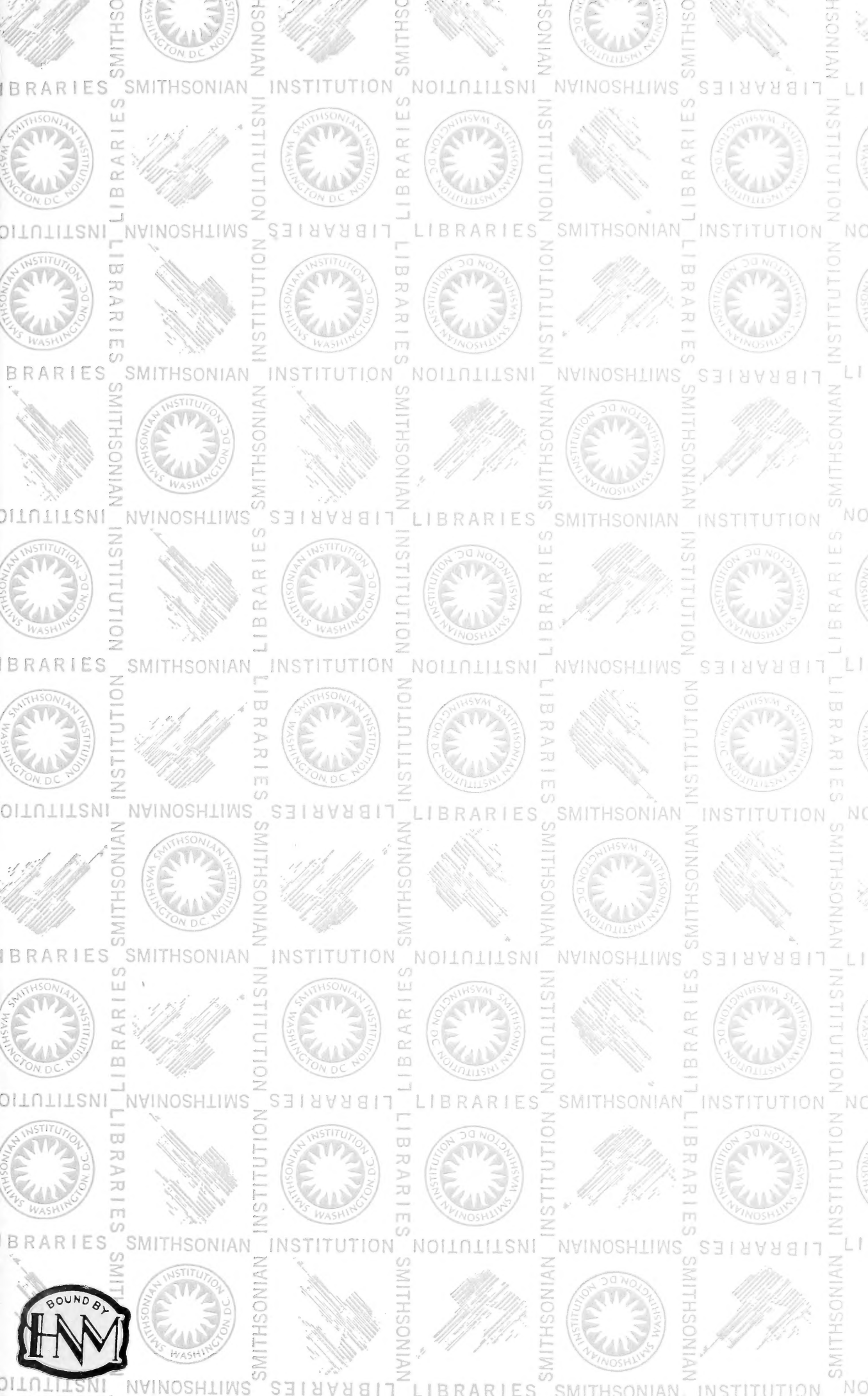
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